THE

AMERICAN AGRICULTURIST.

Agriculture is the most healthful, the most useful, and the most noble employment of Man.—*Washington.*

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PACKING PROVISIONS FOR A FOREIGN MARKET.

The packing of Beef and Pork for a foreign market, is almost entirely a new business which has sprung up in our country within the year past. This is the result of the late modification of the British Tariff, which now admits our provisions at a more moderate duty than formerly, and enables the packers at the west to put up Beef, Pork, and Lard, to a large extent, in those districts where heretofore they were obliged to drive their animals at a very considerable expense, (not unfrequently a ruinous one,) a great distance to a market on the seaboard. By packing near where animals are bred, they can be grown to a larger size, and be made of a better quality; the provisions, also, can be delivered on board ship for exportation, either dried or pickled, at a cheaper rate than when the graziers are obliged to drive their beasts long distances to a market. It is a subject, therefore, of congratulation, that the fertile districts of the west can do their own packing, and thereby enhance at home the value of their abundant products.

Not only have the towns on the Ohio and Mississippi rivers gone extensively into this business, but those on the lakes also seem to be following rapidly in their wake; more especially in the article of Beef, of which we notice large quantities are now putting up, particularly at Cleveland and Chicago, expressly for the English market. At the latter place, it is said not to be uncommon to pack 500 to 700 barrels of Beef per day during the busy season. The prices for cattle range there from $1.50 to $2.00 per hundred; and were the animals of an improved breed, so that more mess pieces could be cut from their briskets, and larger and thicker rounds be taken from their quarters, we are told that the packers could afford to pay 25 to 30 per cent. more for cattle than they now do. Half a cent to three fourths per pound, makes a difference of from three to seven dollars per head for each beast, which is a matter of great importance to the stock-grower in the aggregate. Good bulls are very cheap at present, and by the use of these now, rapid improvements can be made at a small cost. We trust that all those, then, who have no other motive than their own immediate interest, will take the subject of improving their stock into serious consideration, and act with reference to it. They should begin at once, and pursue their object with a steady, enlightened judgment, determined on continued improvement. No finer region exists for the production of Beef than that bordering the lakes. The prairie grass seems admirably adapted to this purpose, as is

proved by the fine fat cattle raised in this country on that alone. What might we not expect, then, when a little attention has been paid to the improvement of the stock consuming it?

ORANGE COUNTY SHOW.

THE annual show of the Orange County Agricultural Society, took place at the pleasant village of Goshen, on Wednesday the 4th of October. We arrived there for the purpose of witnessing it on Tuesday evening, and found the committees in session at their head-quarters, busy in arrangements for the next day. Wednesday came in somewhat blustering and cold for the season; but this did not seem to cool the ardor of the people at all, and early in the morning they began to pour into the quiet village on horseback, and in all sorts of vehicles, in considerable numbers.

The pens for the stock were arranged on the ample green in front of the churches, and were soon filled up with their destined inmates.

By 10 o'clock, about all that was to be shown had arrived on the ground, and the viewing committees entered upon their duties. There were a few good Durham bulls present, especially one belonging to Mr. John A. Smith, which demonstrated the superiority of this breed in his early maturity, easiness of keep, fine points, and good quality of flesh in an eminent degree. There was a pretty good number of excellent dairy cows present, especially those in full milk; the best of which, in our judgment, were the crosses of the Short-Horns. Of working cattle there were few, and horses the same. The show of South-Down, and Leicester sheep was quite respectable; of the Merinos we noticed not over a dozen, although there are many large flocks of fine wool sheep in this county. The pigs were in moderate numbers, some of which were quite choice. The Berkshire sow belonging to Mr. Hulse, and which took the first premium, was one of the finest animals we ever saw.

Among the agricultural implements present, we observed a stone-boat of a new construction; it having a trough-shaped top, suspended 18 inches or so above the usually-constructed bottom. Into this, stones were piled as fast as picked up, and when the boat came to the place where it was desired to unload, by touching a spring the top could be tipped up on either side, and the boat instantly discharged by slipping the stones to the ground.

The Courthouse was devoted to the show of grain, vegetables, fruits, flowers, the dairy products, and domestic manufactures. The butter, as a matter of course in old Orange, was very superior, and in numerous lots. Of cheese there is not much made in this county, and of course little was exhibited.

Taking the show in the aggregate, we did not find that full display of stock and some other things which we had expected to see; not that they do not exist in Orange county, but simply, we believe, because the people do not feel the importance yet of making a numerous and spirited show, or they have not that confidence or desire to bring out their animals and products which we think they should endeavor to attain. However, if the show was rather lacking in these things, it was not at all so in spectators. It was calculated that upward of 6,000 persons were present, which was a large number when we consider the population of the county, and that the weather was somewhat inauspicious most of the day, it being raw and threatening.

At 2 o'clock, a large auditory collected in the Courthouse, and were addressed by the President of the Society, Frederick J. Betts, Esq., of Newburg. His address was listened to with great interest, and we regret that want of space forbids our copying it entire. In one thing we liked it much; and that is, instead of dealing wholly in generals, it went into practical particulars, an extract or two of which we give, as an excellent example for those who may hereafter be called upon to address future assemblies of this kind. We shall look with interest for the result of his attempt with muck to destroy the toad-flax, and we can only add, that the details of one such experiment, no matter whether it fully succeeds or not, is worth all the generalities which we have listened to in agricultural addresses for the past ten years.

I would beg leave to suggest that each member of our society should take upon himself to endeavor, in some respect, to improve the present system of cultivation, as to at least some one product of the soil, and that he be prepared, either verbally or in writing, to give the result of his operations to the society, at these, its annual meetings. With an ardent desire to perform my duties as your President, in a way to produce the greatest good to our Society, and to its members, and believing that public addresses to practical men must, to be effective, not only be *practical*, but must also be somewhat *circumstantial in their details*, I shall venture, even at the risk of tediousness, respectfully, but earnestly, to call your attention to some particulars which I deem important. And I would especially call the attention of every farmer whom I have the honor now to address, to the subject of the destruction of noxious weeds.

The legislature has made it the especial busi-

ness of the Superintendent of Highways, (the road master,) to see that no noxious weed is allowed to grow within his peculiar dominion, the highway, and we can, and ought to compel him to perform his duty in this respect, if he neglects it; and the wholesome provision of the common law, "that every person must so use his own property, as not to injure that of his neighbor," should deter each of us from allowing any weed to mature its seed, so as to be wafted upon his neighbor's premises. Let each of us then attend diligently to his duty in this respect, and I doubt not that our good example will either encourage or shame our less diligent neighbor into the performance of his duty, and save us the necessity of a resort to even remonstrance on the subject.

As worthy of the especial attention of every farmer, I would particularly notice the weed commonly known among us as Toad-Flax; in its grasping, self-appropriating disposition, in the rapidity with which, by root and seed, it will overrun our land, and in the tenacity with which it clings to the slightest foothold it may obtain in the soil, it has, I believe, no successful rival in the great family of weeds—not even excepting that high dignitary among agricultural tormentors, the Canada thistle; with it we must do battle to the death—it will make with us no compromise—it claims all, and it will take all, wherever it obtains the mastery. To study its habits is, perhaps, the surest mode of ascertaining its cheapest and most ready destroyer. "Every bane has its antidote;" and a full measure of honor and reward is due him who shall discover the antidote for this. Careful cultivation, in a series of crops, which admit of the frequent use of the plow, the cultivator, and the hoe, will, it is said, not only destroy it, but convert it into an excellent manure; but it seems to choose for its abode high, broken, and stony land, and there this slow process must prove ineffectual. The fact, however, that it selects such ground as most congenial to its nature, and the further fact, that it is never, at least as far as my observation extends, seen in low, wet, or clay soils, suggests the idea that such soil, and especially muck, may be the remedy we want. I am now trying the experiment of its application, and trust that others will do so likewise.

At the close of the address, some spirited resolutions were passed, gentlemen pledging themselves to considerably augment the funds of the society another year, and thus enable it to extend its future usefulness; all of which we have no doubt will be carried into effect. The award of premiums was then read, and toward sunset most of the spectators returned to their respective homes, seemingly well pleased with the show, and determined to make it as much fuller and as much more spirited as possible another year.

On the whole, we were highly pleased with the excursion to Orange county and what we saw there, and, as hinted in our last number, at the close of the description of some of its butter dairies, it is our intention to give particulars of our visit hereafter. Situated as Orange county is, so near and so easy of access to this city, one of its *chief products* must, for a long course of years, be *milk;* the greatest attention, therefore, should be paid to their breed of cows in this particular. We think that the society ought to increase its premiums on these, and take such further measures for their improvement, as shall ensure this point in them being developed to its utmost extent.

FARM AND ROAD-HORSES.

THERE is nothing like that attention bestowed upon the breeding of good farm and road-horses that there should be; we mean the horse of *all work;* one that is reasonably showy, and possessing strength, endurance, and docility; with a walk of four miles an hour, and an easy trot to itself, over a good level road, of seven miles an hour. We have occasionally seen match horses, with which one could plow two acres easily in a day, and do any kind of farm-work in proportion; such as hauling out manure from the barn-yard, wood from the forest, going to mill, transporting produce, &c., &c.; at the same time they made a handsome appearance single in a buggy, or double in a carriage on the road; were equal to nine or ten miles in an hour, without much fretting, or fifty miles in a day; and were also easy and pleasant under the saddle. Such animals, however, are rare, yet they should not be; for with proper attention bestowed upon the breeding of horses, the farmers might generally as easily produce those we have described, as the miserable and ordinary animals which now pervade the country, and are scarcely worth the cost of rearing. The public is remarkably supine on this important subject, and we despair almost to attempt to rouse it to a proper sense of the advantage of breeding a good race of farm and road-horses.

For hardiness, strength, quickness on the road in walk or trot, and in endurance, the Canadian horse has few superiors; but he lacks show, and is not of sufficient size to suit the generality of our citizens. A few of the Vermont horses come as near to perfection as anything we have ever seen, for the road, saving that they usually want four or five inches more of height, and a proportionable size in other respects, to fit them for the heavy work of the farm, or making a sufficiently showy appearance in the carriage. At the west they have size enough; but reared on their rich, succulent pastures, and fed with corn without stint, they are leggy, lathy, soft, spongy, and without

endurance. If they were fed with oats instead of corn, we have no doubt that the same blood would produce superior animals; for oats make good *muscle;* corn, fat loose flesh. Good, well-developed muscle (lean flesh) constitutes the main strength of any animal. South, and in the middle states, it is either the high-spirited racer on the one hand, or the slow, heavy-moving Dutch horse, on the other. To these there are some exceptions, the best of which are undoubtedly the Messenger, Mambrino, and Bellfounder stock of this vicinity, crossed upon roomy, well-bred country mares. Yet this blood, we regret to say, owing to the carelessness of our countrymen, and great indifference to breeding good roadsters, is nearly extinct; and what little there is left of it, is appreciated only by the few. We do not scruple to add, that a better farm and road-stock than is embraced in the above blood, never existed; and as a proof of it, seven eighths of the mongrel dunghills that are standing throughout the country, from one dollar up to five, are called "*Young*" Messengers, Mambrinos, Bellfounders, or Durocs. The pedigrees in their flaming handbills, let us inform the uninitiated, are a "caution" to all readers. The quizzical editor of the Spirit of the Times, once promised to give the public an epitome of them; we hope that he will soon make good his pledge. They usually begin in this manner:—

"Young Messenger, *sired* by *Old* Messenger, *him* by that famous, well-known horse, *Old* Eclipse, that beat Henry, that run a mile in ONE minute." They do not usually say who they are *damned** by; but if they have any doubts on this subject hereafter, they may add—by all admirers of good stock in general, and the American Agriculturist in particular.

Why it is that our farmers are so careless in the breeding of good horses, we can not divine; for a superior carriage-horse always commands a handsome price, and is of quick sale. We have looked over several hundred pairs of horses brought to this city for sale within the past six months, and there were scarce ten really prime ones 16 hands high among them. These brought from $700 to $800 the pair readily, and $600 is the very lowest price on an average that may be expected for them. The dealers usually calculate upon an advance of $200 for breaking, and risk and expense of marketing, which, considering the many mishaps which occur, is none too much. Estimating the average price, then, of good carriage-horses at $600 per pair, and deducting $200 for marketing, it leaves $400 to the farmer, which makes it a fair business, and well worth his bestowing more attention than he now does on the blood and rearing of this most serviceable animal to man. We wish the money that is annually thrown away upon race-horses, could be devoted to the breeding of good roadsters; how much better it would be for the country, we need not add.

* For a humorous explanation of this term, see a quotation from John Randolph, page 171 of this paper, col. 2d, Sept. No.

STRAW FODDER.

IN our October No. we took occasion to speak of the value for fodder of even so poor an article as buckwheat straw is generally considered. Oat, rye, and wheat straw, are much superior. In consequence of the early and unusually deep snows which have fallen this month and the past, the root crops have not been saved as well as usual, nor in as large quantities; and although hay is abundant, the farmers before spring, may find themselves shorter in their fodder than they anticipated. We recommend, therefore, that they husband all their straw carefully, as it is thrashed; and if there be any danger of a want of fodder, obtain cutting-machines, and have it cut up, then slightly moistened in the heap, and a small quantity of shorts, bran, oil or other meal, with a slight sprinkling of salt added to it. These additions make the stock relish the straw well, eat it with avidity, and thrive admirably upon it, especially if the animals are of a good breed.

Let it be recollected that the chief food of English stock throughout the winter, is straw with a few roots. The celebrated Bakewell kept a part of his animals in good heart on *straw alone* for several months every season; but his breed was superior, and to this circumstance a part of its merit must be attributed. Coarse, ill-bred animals are a loss under any circumstances, and the greater part of the food which is given them goes to waste; it matters little, therefore, whether it be grain, roots, hay, or straw; for all, or either of these articles will bring more in market than the growth or accumulation of flesh of the animals to which they are feed. We wish that some of our readers would make an experiment on the value of wheat, oat, and rye straw, in feeding this winter, and communicate the same to us. The straw should be evenly thrashed, and fed at the same time to three distinct lots of animals, as near alike as possible. The straw must be weighed, the animals also at the time of beginning to feed them, and again when the experiment is finished, so as to ascertain their exact gain or loss. The trouble of making

such an experiment is trifling, and any one doing it and reporting to us, we will put on our free list for ten years.

We published a table on the comparative value of different kinds of fodder for cattle, in our first Volume, page 250. We know from repeated observation, that the value of straw varies greatly, according to the time that it is cut. If reaped when the grain is in the milk, it is more nutritious than when the berry becomes hard; but if allowed to stand till the grain easily shells from the head upon being shaken, and the stalks and leaves get rusty, it becomes nearly valueless as fodder. It has been proved that grain may be cut from three to ten days earlier than we have been accustomed to do it in this country, that it will give a better sample in consequence of this early cutting, and that the straw is of far superior quality.

HARTFORD COUNTY AGRICULTURAL SHOW.

The day after the New Haven Show being over, (September 29th,) was appointed for the great display at Hartford, Connecticut. Joined by a pleasant party of friends at this point, we took the morning train at an early hour, and were soon set down in this fine old town, and ancient seat of government of Connecticut. The weather could not have possibly been finer, and we found the city thronged with denizens from the country, all anxious for the Show. The ample rooms of the City Hall were devoted to the minor articles, and here we found a highly creditable display of fruits, flowers, vegetables, grain, flour, dairy products, and domestic manufactures. We should like to dwell upon the merits of these, particularly of some kinds of fruits and vegetables present, but we fear to fatigue our readers with repetitions of such things as we see elsewhere, and therefore forbear.

The stock-yard was in the environs of the town, near the river, and this was well filled with the usual breeds of domestic animals. There were a few very fine fat cattle present, and about 220 head of working oxen. Red predominated in their color. Some had nearly the fineness of points and clean sinewy limbs of the Devons; but usually, they were rather coarser and larger. Notwithstanding this, they seemed sufficiently quick in their movements, are said to be powerful in the yoke, and can not be excelled for their size as working oxen. We noticed a few good Durham bulls. Mr. Collins's Hero especially excels in his handling qualities; and from the points of his shoulders back, it would be difficult to beat him, take the United States over. The best milking cows on the ground we were informed were grade Durhams; but everything so soon gets mixed up with the generality of farmers, that it is impossible to give more than an indefinite guess as to the breeding of nine tenths of the stock of the country. We must confess ourselves great sticklers for pedigree among animals, or what is technically termed "*barn-yard aristocracy;*" and we do like to be able to answer, with some definiteness, the question of the shrewd Yankee boy:—

"Wal, now, Mister, can you tell us who that 'ere crittur's daddy is? If you can, and 'tis a *good* one, it's a trade, anyhow, and no more *slack*."

Yes, the boy was right. To know "daddy and mammy" puts an end to "slack," and makes some certainty in the animal itself and its breeding; the public, therefore, must bear patiently with us if we fire away rather sharp now and then upon *barn-yard democracy*. We mean no treason against the Republic by this, and only want to revolutionize a little the domestic animals of the country. But to return to the Show.

There was a good display of native bulls, of a handsome, bright-red color, some of which were unusually fine, and deserving all the care and attention bestowed upon them. Only go on, gentlemen, we say, and improve these, and you shall find us your warm supporters. Of fine-woolled sheep there was a goodly number, principally an intermixure of the Saxons and Merinos. Pigs were rather a scarce article present. Poultry was in pretty full feather, and Mr. Kennedy's coops, especially those containing his noble gobblers, attracted marked attention. They were the representatives of a flock of about 80 at home, and appeared so superior, that we set them down as belonging to the "*aristocracy*" of poultry.

At 2 o'clock P. M., in company with the members of the Hartford County Society, and delegates from others in different counties, we sat down to a capital dinner at the United States Hotel. This was soon discussed, when all proceeded to the Center Church, to hear the anniversary address. This was preceded by a prayer by the Rev. Dr. Hawes, and the singing, by a choir of about 70 little girls, of a beautiful hymn, composed for the occasion by Mrs. Sigourney. Francis Gillette, Esq., of Bloomfield, then rose and made an excellent address, which was followed by the little girls singing the pretty song of—

O, the merry harvest-time!
The merry, matchless harvest-time!
What can vie, beneath the sky,
With the matchless harvest-time?

The Plowing Match now took place about a mile from town; but as the evening train was to leave about this hour, and as we were under the necessity of returning to the city that night, we could not stay to see it. We subsequently understood from one who was present, that eleven teams entered as competitors for the premiums. The task was the usual quantity of one eighth of an acre; the one that did his work best within an hour, to be considered the winner. The soil was a heavy loam, and the depth of furrow required, 7 inches. The width of the furrow was not prescribed, but run from 13 to 15 inches. This was heavy plowing, and most of the teams had two yoke of cattle in them. The average time was 32 minutes. The plowing was excellently well done. Mr. Zenas Rider took the first premium of $6; Mr. Erastus Morgan, the second of $4; and Mr. George Clarke, the third of $3. Thus ended the Agricultural Show for the beautiful and fertile county of Hartford. We had a delightful day of it there, and feel under obligations for the attentions showed us by the officers of the society, and others whom we met during our brief stay in the county.

DRAINING LANDS.

Much time and labor is annually wasted for want of properly understanding the best method of draining lands. Where there is surface-water merely, or pond-holes to drain off, draining is easily accomplished by merely running a ditch through the lowest part of the grounds, to a depth below the standing water. In ground that is springy, thorough draining is more complicated; but by proper observation, and a little experience, one may soon become so well acquainted with what is necessary to be done, as to feel under no embarrassment in ordinary cases.

The principal rule to observe in draining springy ground, is to seek the sources of these springs, and cut them off from the land to be drained, by digging the ditch deeper than the springs, near where they make their first appearance in it. For example, most of the land which it is desired to drain in this vicinity, is low swales or meadows, encircled by banks of table land, or hills of a greater or less height, from which the water oozes out and saturates the ground below. In most of the attempts which we have seen to drain this kind of land, a ditch is merely cut through the centre of the swale. This only serves to draw the water from the higher ground to it, without making the land any drier, except for a few feet on each side of the ditch. Now the true way is to cut a ditch at the foot of the banks or hills bounding the land to be drained, lower than the springs which ooze out of these elevations, and the water is immediately and effectually drawn off, and the ground which before was saturated like a wet sponge, becomes dry at once, and may then be put under cultivation.

The open weather of this and the following month is an excellent time for ditching, there being little to be done in our northern climate, save taking care of the stock, digging marl, or preparing composts for manures. We are glad to see, in our frequent excursions over the country, that much more attention is paid now to draining than formerly; but there are thousands of acres yet in the older-settled states, which claim the attention of the spade, and these lands, as we have before remarked, when divested of water, and put under cultivation, prove of the strongest and most valuable quality. They frequently abound with peat and rich vegetable matter, to a greater or less depth, and the excess of this can in all cases be used for fertilizing other portions of the farm.

MR. VAIL'S DURHAMS.

As some of Mr. Vail's stock was imported from the renowned herd of Mr. Bates of England, and as we had not seen it for nearly two years, at which time it had not attained sufficient age to be fully developed, we took a fancy, one of those clear sunny mornings in July, when the city is so hot, and the country looks so cool and inviting, to step on board the magnificent steamboat Empire, just as she was casting loose her fastenings, preparatory to a start on her daily trip to Troy. This is a distance from New York, by river, of about 160 miles; but that is nothing now-a-days, and in less than 10 hours we were safely landed at the foot of the classic Mount Ida, and in half an hour more Mr. Vail set us down among his stock on the farm.

The first animal that we looked at, was Wellington, as a matter of course; but how he had changed from the light 2-year-old form which we presented to our readers as his portrait, in the December No. of the first volume of this periodical. He was now (last July) 3 years and 9 months old, and had already nearly the full development of a mature, grown bull. Wellington is not large to look at, yet he is very heavy to weigh; then his horns, head, and limbs, are so fine; his points so well filled out, especially in rotundity of body, and depth and breadth of brisket, that it makes

him a deceptive animal to the eye of any except a strict connoisseur. His handling is very good—his presence imposing—his action light, free, and easy. He was by Short Tail, (2,621,) out of the Oxford Cow, which obtained the first prize open to all England, at the Show of the Royal Agricultural Society in July, 1839. The Oxford Cow is a remarkable milker. In a letter received by Mr. Vail from Mr. Bates, dated Kirkleavington, September 18th, 1843, he thus speaks of her:—

The Oxford Premium Cow, calved October 5th, 1838, and was milked regularly every meal, twice a day, till October, 1841, (3 years,) and in September, 1841, would have weighed 100 stone, of 14 lbs. per stone, [1,400 lbs.] and this on grass only.

It was in August of this year that we saw her repeatedly on Mr. Bates' estate, and certainly she was the broadest and most massive cow we ever looked at, and in her points generally a very superior animal.

Duchess we thought had improved even more than Wellington. She is really extremely fine; especially in the head, horn, and neck, with beautiful eyes, and a brisket projecting something like Mr. Bates Duchess 34, as figured in April No. for current volume. Mr. Vail's Duchess is out of Nonsuch 2d, by the Duke of Northumberland, whose portrait is given in our May No. He is the best Short-Horn bull we saw in England, and has always taken the first prize when exhibited at the Royal Agricultural Society Show, as also at that of Yorkshire. In importing this stock, Mr. Vail aimed to combine deep-milking qualities, with good handling, symmetrical forms, and early maturity. How well he has succeeded, the public have only to call and judge for themselves.

Mr. Vail had two young bulls from Duchess, by Wellington, when we were at Troy, and by this time she has probably dropped a third calf. The first, Meteor, now 2 years old, was exhibited at the Show of the American Institute in this city last month, and took the first prize for bulls of any age—a silver cup. He was generally admired, and in appearance is much like his sire. The other bull is quite as promising as Meteor was at his age; but we can tell better how he will look when more fully developed.

We were shown several other fine animals when at Mr. Vail's, of which we made notes at the time; but these unluckily being mislaid, we can not speak more particularly as to their merits, further than to say, that we believe they are from deep-milking families. The produce of these cows, by Wellington, show a great improvement over their dams. Victoria, a 2-year-old heifer, is a remarkable animal; and one has only to look at her deep, wide brisket, fat rumps, and well-developed quarters, to be convinced of the great advantage of possessing a well-bred and well-chosen stock. In our judgment, Mr. Vail has not in all cases had that justice done to his animals which was their due; it, therefore, affords us the more pleasure to speak of them as we think they merit; and if others differ with us, we can only hope they will allow us the same freedom of opinion that we are at all times willing to accord to them.

A TRIP TO LOG HALL.

Owing to the hot weather coming on unusually early when recently in Mississippi, we made so short a stay in the state, as to deprive ourselves of the advantage of seeing many things in that country, which it would have given us great pleasure to do. Not the least among these was a visit we had planned to Dr. Philips of Log Hall. To make amends in a measure for our loss, we give some extracts from the Southwestern Farmer, detailing a trip which the editor recently took there. We trust one of these days that we shall be able to follow in his footsteps.

We found the Doctor busy in his barn-yard—for he is hardly ever away from home, dressed in very proper farmer-like habiliments—a home-made woollen roundabout, cottonade pants, buckskin shoes, &c. It is something unusual to see a *barn* in Mississippi: the one at Log Hall is a spacious structure, put up in an excellent style of workmanship. In this barn and the surrounding sheds, are vast stores of hay, fodder, oats, straw, and other provender; and in one of the apartments a patent cutting-machine, turned by crank, in which everything is cut up—hay, oat-straw, fodder—all is cut up—racks are not used at all; but a wide trough is in every stall, as well as under sheds in the yard, where cattle and other stock find the food cut up and brought down to a level with their respective capacities.

The *hog-pen* showed the same provident care. A furnace and a capacious kettle were there, to cook food for the fattening hogs; and a series of troughs, for alternately cooling and feeding with. All the different pens and lots about the barn-yard opened into it by means of small gates, substantially and neatly made.

The *piggery* was a sight entirely new to us; a "long-drawn aisle" extended from end to end of this establishment, along the middle; and on either side of this aisle were suits of rooms for the different madams and their young families of porkers, the troughs being on the side next the aisle, so that each apartment could be fed from the centre. The entrance to each apartment or pen, was by a gate opening on the outside.

The *implements* at Log Hall embrace a great number and variety of choice articles. Under one shed we saw twenty-seven plows and cultivators, most of which were of peculiar beauty and value. Among the implements we saw also a cob-crusher, a corn-sheller, a thrashing-machine, &c., &c.

The *buildings*, also, are worthy of the man. The house itself, which is not yet completed, is admirably arranged for comfort and convenience; is well ventilated, and planned and constructed in good taste. The gin-house, and, indeed, nearly all the structures about the place, have been evidently put up with a view to permanent utility, rather than for cheapness—no make-shift expedients, but abiding conveniences.

The land is of good quality, rather richer than the average of lands in Hinds, and lies very handsomely, sloping down to the Chittoo-Loosa (Big Black) river. On the upland part, we examined the experiment which the Doctor has been making with manuring cotton. The difference is not only manifest, but really astonishing. Manured cotton and unmanured cotton were growing side by side, and the difference was about the same as that between the cotton on the Mississippi bottoms, and that on ordinary thin uplands.

Seeing a pile of manuscript books on the Doctor's desk, on our return to the house, we must needs pry into them. Here was a "*Stock Book*," giving the history and pedigree of each animal on the place, with the date of all the operations in that department, it being, to the barn-yard and piggery, a minute "Family Record of births, marriages, and deaths." Then there was the "*Farm Book*," a kind of daily journal of all the work done. In another book was a list of all the field hands, and opposite to every day (except Sunday) a statement of the pick of each hand—and that running back for many years. The hands are a happy looking set, showing, by their fat and cheerful appearance, that they know what good living and plenty of it means.

After all this, we need hardly say that Dr. P. is a man of untiring energy. Happily, he has a help meet who is herself "magna pars," in regard to the order, the neatness, the good taste, and the general economy that prevail. A great part of the time at the hall is devoted to literary pastime; for, where system is adopted, labor does not encroach upon the hours for recreation, nor recreation upon those of labor. Each duty has its appropriate season; and at that season the duty is done. Hence, notwithstanding his excessive labors, (for he employs no overseer,) notwithstanding the great attention he gives to reading and to his domestic enjoyments, yet still he manages to find time to write more, we venture to say, than any farmer in the state.

WATER-ROTTING HEMP.—In our first volume, page 209, we spoke of the intention of Mr. Savage of Kentucky, to try the experiment of water-rotting hemp in a flat-boat moored in the Ohio river, by boring holes in the bottom and sinking it nearly to a level with the top of the boat. We see in the Kentucky Commonwealth, that Mr. Sandford Connelly of Union county, has succeeded well in rotting hemp by adopting this system, and he recommends it to others. He found that hemp water-rotted in the spring, after lying in stack all winter, made a stronger and handsomer sample than that rotted in the fall.

IMPROVEMENT OF DOMESTIC STOCK.

As the Cultivator continues knowingly to misrepresent our differences of opinion upon this subject, we here restate them in a single sentence for the last time, referring the reader to the full quotations which we have given in several of our late Nos., to substantiate us in every word we utter.

The Cultivator asserts, that animals possessing 20 good points, can be improved by crossing them with others possessing only 5. This we deny in toto; and say that by taking such a cross, one must expect to get the *bad* with the *good*, and not calculate as a general rule, that the produce would possess over 10 or 12 good points, and more probably not exceed 8 or 9; and we can appeal confidently to every experienced breeder to substantiate this opinion. We made no reference whatever to the Cultivator's remarks about crossing upward with superior bulls, for all this was but the echo of what any school-boy might have written, and what has been repeated a thousand times in articles already published on stock breeding. *That*, the Cultivator had learned from its horn-book; but the "*five points*" improving principle was *original;* and as this recommendation, if followed up, would infallibly *destroy* every well-bred animal in the country in a *single generation*, and with them millions of dollars invested in fine stock, and the painful labors of years, we determined to speak out at once strongly and boldly. What we said was felt in the right quarter, and we had predetermined it should be. We will venture to add that the country will not be pestered with any more such mischievous nonsense very soon, and that the attempted improvements by every conceited jackanapes, who happens to have jumbled two ideas together on this subject, will now pause for a while. As far as we can learn, there has not been a single dissenting voice to our opinion, and not one that has not condemned the course recommended by the Cultivator. We must confess that we do not feel under any particular obligations for the advice tendered us by a few of what we think over good-natured friends. Little matters we invariably let go, for we doubtless err often enough in these ourselves, and are therefore willing to be both lenient and charitable to others;

but if the public ever catches us attempting to lead the country astray in a thing of so much importance as recommended above, they are welcome to lay on as much as they please—they shall never hear us complain or beg for sympathy.

PERIOD OF GESTATION OF DOMESTIC ANIMALS.

It is very important to farmers to know the length of time that different animals go with young. We accordingly give the period of those which most concern him as near as we can ascertain it.

Mare	11	months.
Jennet	11	"
Cow	9	"
Goat	4½	"
Ewe	5	"
Sow	4	"
Bitch	2	"
Cat	8	weeks.
Rabbit	4½	"
Rat	5 to 6	"
Mouse	4 " 5	"
Guinea Pig	3	"

Period of Incubation of Domestic Fowls.

Swan	6	weeks.
Turkey	4	"
Goose	4	"
Duck	4	"
Pea-Hen	4	"
Guinea-Hen	3	"
Common Hen	3	"
Pigeon	2	"

GOOD EFFECTS OF PLASTER NEAR SALT WATER.

It is generally contended by writers, that lands within 30 miles of the sea, or any large body of salt water, are not benefited by the use of plaster; and taking these assertions for our authority, we so believed till we made a visit to the farm of Mr. William K. Townsend of New Haven, lying directly on the Sound, and gradually sloping to it, and of course under the direct influence of sea breezes and sea exhalations. Mr. Townsend sows at the rate of from one to three bushels of plaster per acre on his grass-land, and the effects are nearly if not quite as apparent as any we have witnessed in the interior of the country. Several experiments have been made here by sowing a breadth of land, and then skip a breadth, and so continuing till the whole field was gone over. At the time of cutting the hay on those breadths where the plaster was sown, the grass was not only thicker and taller, but finer, and apparently of a sweeter and better quality. The after-math or rowen showed the same difference in an eminent degree.

A practical result of this kind shows that the theory of saline vapors combining with the plaster, and making it inoperative is at fault; and chemists must now seek some other cause than this, to convince us that lands close to the vicinity of salt water are not benefited by the use of plaster. Such land as lies so near the sea as to be continually saturated by the spray of the surf beating upon the shore, may not be benefited by the use of plaster; for by the excess of salt, they become almost entirely barren; but those a little removed from the ocean, it is proved by the experiment of Mr. Townsend, can be improved by the application of it. We hope others may be induced to try experiments of the use of plaster, especially by sowing it in the fall, and early in the spring, followed by a wet as well as a dry summer. Plaster requires about 500 parts of water to dissolve it; a wet season following the sowing of it, would therefore be the fairest test of its efficacy.

THIRD VOLUME OF THE AMERICAN AGRICULTURIST.

Two more numbers, which will be issued on the 1st and 15th of next month, will complete the Second Volume of this paper; and on the 1st of January, we shall commence Volume Third. For this, we have many things in store, of which we shall speak hereafter. The present handsome and convenient form, high, national character, and cheap price of the American Agriculturist, will continue to be maintained. It has received the sanction of the public in an eminent degree; and its *steady, increasing* circulation, is an ample guarantee of the future. During October, we had an addition of upward of 300 to our subscription list, nearly every one of which ordered the work from the commencement of the first volume. November, so far, is equally promising, and in addition to this, our average sales the past season have been over 100 bound copies of Volume I. per month. We will venture to say, that this, when it is considered we are so near the close of our volume, is unexampled in agricultural periodical literature; and we have no doubt that the list of subscribers to Volume Third will be the largest of any in the Union. The American Agriculturist took its stand from the first, as unrivalled in point of practical knowledge and general ability; and as it begun, so it has kept on, with the added knowledge and improvements of the day, and thus will it continue

to the end of its career, which, if our life and health be spared by a kind Providence, we intend shall be a long one. We hope that those who have so generously sustained us so far, will continue their kind offices, and that others whose eye may meet this paragraph, will not remain behind them in the good cause of disseminating a work so well calculated as this to promote an improved and enlightened system of Agriculture.

Review of Leibig.—We finish Dr. Mohl's searching Review of Leibig in the present number. We recommend the concluding paragraphs especially to the attention of our readers; for while the last accords to this distinguished chemist, seemingly, all that he can justly claim, the preceding one exposes his apparently hasty conclusions and mistakes with no little severity. We shall look for Leibig's reply to this with no little interest, and shall be glad if he can show substantial reasons for all his bold assertions.

Salt and Lime for Stock.—We see that the American Farmer recommends equal parts of salt and lime mixed to give to stock. We always supposed lime injurious to animals taken internally, and on this account, have often heard objections to using salt for stock made from one of the springs at Syracuse. Will the Farmer please inform us why lime is thus used, and what are its benefits?

Postage.—We trust that every freeman in these States will use his influence with the representatives and senators of Congress, to have the exorbitant rates of postage cut down, and the franking privilege *entirely abolished*. We are informed upon good authority, that seven eighths of the weight of the mails now are franked; thus a practical aristocratic feature is introduced into our republican system, *taxing the many for the benefit of the few*. If government or any of its officers wish a letter or pamphlet carried by mail, we say, *let them pay* for it the same as any private individual. We think that the charges for carrying letters, newspapers, pamphlets, and all mailable matter, should be regulated by the ounce; and we see no reason to alter our proposition of rates from those heretofore expressed in this paper, unless upon trial it should be found that they could be carried cheaper, viz:—

5 cents per ounce for all letters 100 miles and under.
10 cents " " over 100 miles and under 500.
15 cents " " over 500 miles.

For the purpose of encouraging the diffusion of knowledge among the people, papers and pamphlets should not be charged above half a cent per ounce, the United States over. We are confident that under such a system, a greater revenue would accrue to the Post Office than at present. Every one now feels that the rates of postage are an odious and unjust tax, and they conspire to evade it in all possible ways.

LIST OF PREMIUMS

Awarded at the 16th Annual Show of the American Institute, October, 1843.

Agricultural and Horticultural Department.

Horses.

Stallions.—Hezekiah Wetmore, West Chester co., N. Y., best stallion—silver cup. Henry Vanderwater, New York, for 2d do.—diploma.

Brood Mares.—Robert L. Stevens, Hoboken, N. J., best brood mare, Polly Hopkins—silver cup. John H. Coster, New York, brood mare, Gulnare—silver medal. Henry Watson, East Windsor, Ct., brood mare, Betsy Wilson—diploma: a silver cup having been before awarded. John A. Pool, New Brunswick, N. J., brood mare Indiana—diploma: a silver cup having been before awarded. C. M. Hall, Harlem, N. Y., young brood mare, Young Lady Light-Foot—diploma. Alexander Benedict, Staten Island, N. Y., gray mare—diploma.

Colts.—Robert L. Stevens, Hoboken, N. J., best colt—silver cup.

Jacks.

John A. Pool, New Brunswick, N. J., best jack—diploma: a silver cup awarded last year.

Mules.

Robert L. Stevens, Hoboken, N. J., best pair of mules—silver cup.

Improved Breeds of Cattle.

Bulls, 2 years old and upward.—George Vail, Troy, N. Y., best Durham bull, Meteor—silver cup. Henry Hull, best Devon bull—silver cup.

Bulls, 1 year old.—George M. Woolsey, Hurlgate Neck, N. Y., best Durham bull, Jupiter—silver cup.

Bull Calves.—Wm. Gibbons, Madison, N. J., best Durham bull calf—silver medal.

Cows.—Thomas Addis Emmet, Mt. Vernon, N. Y., best Durham Cow, Celeste—silver cup.

Heifers.—Wm. Pirnie, Harrisontown, N. J., best Durham heifer, Victoria—silver cup.

Heifer Calves.—Wm. Gibbons, Madison, N. J., best Durham heifer calf—silver medal.

Native Stock.

Cows.—John R. Peters, New York, best native cow—silver cup.

Heifers.—Joseph Clowes, Harsimus, N. J., best native heifer—silver medal.

Bull Calves.—Bethuel Brackett, New Haven, Ct., best native bull calf—silver medal.

Working Oxen.—Benajah Ives, Cheshire, Ct., best pair of working oxen—silver cup. Lambert Wyckoff, Bushwick, L. I., 2d best pair of working oxen—silver medal.

Special Awards.

Bulls.—Wm. Gibbons, Madison, N. J., Durham bull, Zero—silver cup. John A. Pool, New Brunswick, N. J., Durham bull, Carter—silver cup.

Cows.—Henry Whitney, New Haven, Ct., Durham heifer, Cornelia—silver cup. Henry Smith, Astoria, L. I., a cow of great milking qualities—silver cup.

Sheep.

Long Wools.—George Monteith, Albany, N. Y., best buck, Cotswold breed—silver cup. Charles Blackbourne, Bedford, L. I., best ewe, Lincolnshire breed—silver cup. Charles Blackbourne, Bedford, L. I., best lamb—silver medal.

Middle Wools.—Obadiah Elliot, Middleham, N. J., best buck, Southdown breed—silver cup. Francis M.

Rotch, Butternutts, N. Y., best ewe, Southdown breed—silver cup. Francis M. Rotch, Butternutts, N. Y., best lamb, Southdown breed—silver medal.

Fat Wethers.—J. Macdonald McIntyre, Albany, N. Y., best fat wether, Southdown and Cotswold breeds—silver cup.

SPECIAL AWARDS.

William Pirnie, Harrisontown, N. Y., for a ewe and lamb, Leicester breed—diploma.

James Broidie, West Chester co., N. Y., for a ewe and two lambs, Leicester breed—diploma.

J. Macdonald McIntyre, Albany, N. Y., for a Southdown buck—diploma.

John Beatty, Morris co., N. J., for six ewes of the Bakewell breed—diploma.

Charles Blackbourne, Bedford, L. I., for a Lincolnshire buck—diploma.

George Monteith, Albany, N. Y., for Leicester bucks—diploma.

SWINE.

William P. Moss, New York, for the best Berkshire boar—silver cup.

Alexander Benedict, Staten Island, for the 2d best boar—diploma.

John Giles, Providence, R. I., for the best Berkshire sow—silver cup.

John Rutter, Yorkville, N. Y., for the 2d best sow—diploma.

TURKEYS, GEESE, DUCKS, AND FOWLS.

W. J. Townsend, Newtown, L. I., for the best pair of turkeys—American Poultry Book.

William Ross, Ravenswood, L. I., for the best pair of Bremen geese—American Poultry Book.

Henry A. Field, New York, for the best pair of mongrel geese—American Poultry Book.

W. J. Townsend, Newtown, L. I., for the best pair of Muscovy ducks—American Poultry Book.

Mr. Orphan, New York, for the best pair of common ducks—American Poultry Book.

H. T. Chapman, New York, for the best pair of imported Dorking fowls—American Poultry Book.

Wm. Ross, Ravenswood, L. I., for the best pair of Poland fowls—American Poultry Book.

Thomas Bartine, Astoria, L. I., for the best pair of capons—American Poultry Book.

J. W. Goodwin, Fort Hamilton, L. I., for the best lot of Egyptian fowls—American Poultry Book.

S. A. Halsey, Astoria, L. I., for a pair of Chinese fowls—American Poultry Book.

George C. De Kay, New York, for a bird (the Curaçoa)—American Poultry Book.

Joseph Foulke, Hell Gate, N. Y., for a bird (the Flamingo)—American Poultry Book.

PRODUCTS OF THE DAIRY.

J. H. Smith, Montgomery co., N. Y., for the best butter—silver cup.

Miss Francis C. Johnson, Goshen, N. Y., for a good specimen of butter—silver medal.

Edwin Smith, for the best old cheese—silver cup.

Case & Freeman, 101 Front st., New York, for the best new cheese—silver medal.

M. Davenport, 3 Front st., New York, for the best pine-apple cheese—silver medal.

SPECIAL AWARDS.

E. P. Whiting, Goshen, N. Y., for a good specimen of old cheese—diploma.

N. Coe, Winchester, Ct., for a good specimen of old cheese—diploma.

Roswell Plummer, for a good specimen of new cheese—diploma.

Stephen Yates, Palatine, N. Y., for a good specimen of new cheese—diploma.

Charles A. Jackson, 29 Front st., N. Y., for a good specimen of pine-apple cheese—diploma.

MILK.

T. Selleck, Chester, Orange co., N. Y., for the best milk (test 115°)—silver medal.

Mathew Hanna, Oxford, Orange co., N. Y., for the 2d best milk (test 107°)—diploma.

AGRICULTURAL IMPLEMENTS AND MACHINERY.

Cornelius Bergen, Brooklyn, L. I., for the best plow, self-sharpening—silver cup.

E. G. Whiting, Trenton, N. J., for the 2d best plow, Wiskonsin—silver medal.

J. S. Eastman, Baltimore, Md., for the 3d best plow—diploma.

Cornelius Van Winkle, Paterson, N. J., for the best plowing, done with Eastman's plow—silver cup.

William Close, Paterson, N. J., for the 2d best plowing, done with Bergen's plow—silver medal.

John Swanville, Plainfield, N. J., for the 3d best plowing—diploma.

Curtis Thorp, Binghampton, Broome co., N. Y., for a corn-hiller—diploma.

Curtis Thorp, Binghampton, Broome co., N. Y., for a three-share plow—diploma.

Thomas Wiard, Avon, Livingston co., N. Y., for a four-share plow of great merit—gold medal.

Jonathan Conroy, 221 Houston st., N. Y., for Walters's adjusting plow-stock—diploma.

T. & J. C. Porter, and Chauncey Hart, Farmington, Conn., for the best ox-yoke—diploma.

J. S. & J. P. Newton, Woodbridge, N. J., for an ox-yoke—diploma.

Edward Townley, 75 Thompson st., for the best bee-hives—diploma: a silver medal having been before awarded.

Brown & Nostrand, West Farms, N. Y., for excellent bee-hives—diploma.

Archibald C. Ketchum, Schenectady, N. Y., for a potato-digger—diploma.

J. C. Langdon, Troy, N. Y., for cultivator plows and drag-rake—diploma.

William Wallace, 414 Fourth st., N. Y., for a thrashing-machine—diploma.

Thomas P. Thorne, Fishkill landing, N. Y., for a straw-cutter—silver medal.

William Hovey, Worcester, Mass., for a hay-cutter—diploma.

George Smithson, 229 West st., N. Y., for a straw-cutter—diploma.

Todd & Marshall, Stamford, Conn., for a straw-cutter—diploma.

Henry Warren, Troy, N. Y., for a root-cutter—diploma.

C. Conklin, Peekskill, N. Y., for a feed-cutter—diploma.

John Moore, 31 Fulton st., N. Y., for an exhibition of agricultural implements—diploma.

B. M. Freeborn, 183 Front st., N. Y., for an exhibition of agricultural implements—diploma.

John Mayher & Co., 195 Front st., N. Y., for an exhibition of agricultural implements—diploma.

Jordan L. Mott, 264 Water st., N. Y., for the best agricultural boiler—diploma: silver medal having been before awarded.

[The premiums on Fruit, Flowers, Vegetables, and Agricultural productions, in our next.]

ORIGINAL CORRESPONDENCE.

For the American Agriculturist.

IS CHESS THE ORIGINAL OF WHEAT?

Buffalo, November 2, 1843.

No. VIII., p. 240, of the American Agriculturist contains a letter dated Virginia, August 10, and signed P., which, from some internal evidence, indicates an origin from one able and enlightened, and now filling a responsible post in the great cause of American agriculture; and though it may be our lot, for the time being, to differ on some points in this important and comprehensive pursuit, yet it may be fairly assumed that we agree in wishing to arrive at *truth*, wherever that may lie. He will excuse me for adding it would have been more *pleasant* and satisfactory to the public, had he added his name to the communication. But allow me in the first place, to correct a preliminary mistake he has fallen into, in attributing the authorship of "Ulmus" to me, the credit of which, whatever it may be, being due to Mr. L. F. Allen, and not to me, who entered the agricultural field some years subsequent to the publications alluded to.

It is a source of no little regret, to find so worthy a correspondent as P. falling into some of the common errors of a controversialist, under which genus it is the least of my ambition to be classed. It partakes rather too much of the Swift and Warburton school, to be in decidedly good taste. I "undertake to make suggestions, which should not have been expected from an enlightened man in this enlightened day;" and I am "Rip Van Winkle sleeping through the chess controversy," which resulted in the "*triumphant*" (?) overthrow of this "deeply-rooted and popular error;" and if I had not thus slept I "would have scarcely ventured to evoke the aid of metamorphosis, long since exploded and banished to the dim twilight of agricultural knowledge, nor remained ignorant of the utter discomfiture of those who then thought as I do now."

With all deference to the responsible station and well-known ability of P., I must beg leave to say, that I see no relevancy to the subject in these and kindred remarks. It is talking about it, and about it, but not to the matter in issue. I made a *suggestion* it is true, (not "*suggestions*,") that chess is the original of wheat, but I do not attempt to substantiate it, for nothing would satisfy even myself of its correctness, short of absolute demonstration, which can only be afforded by actual experiment, for which, years may be required. But P. neither overthrows this single suggestion, nor even renders it less probable than it was before.

But to the main subject of his article. I regret he should have confined himself to asserting simply the discomfiture of one of the parties belligerent, without condescending to inform us ignoramuses in what particular way, and on what grounds we have been overthrown. I must assert again my ignorance of the chess controversy, nay more, my utter repugnance to wade through pages and folios for ideas, which, after all, may exist rather in the imagination of the writers and their too credulous readers, than in the volumes supposed to be enriched by them. I should as soon think of looking over the tomes of monkish superstition, containing the evidence on which Galileo was confuted, in his novel and heretical ideas that the world turned on its axis. But this I will stipulate with P. to do: I will carefully read, and weigh every idea going to show the inconvertibility of wheat into chess, if collected and *condensed* by P. into a tangible, comprehensive, and readable form. But he must be sure *they are ideas* going directly to establish his position, not round-about and irrelevant assertions that prove nothing to the purpose. As it is my only desire to arrive at the truth of this matter in the shortest possible way, without at all permitting myself to be awed or hampered by commanding names or authority, when "a greater than Solomon" is at hand to settle the principle, I mean *nature herself*, I shall confine what I have to say on this subject to the statement of a few simple facts.

A neighbor of mine had a field of fine wheat apparently entirely free from chess, except by the side of one of the fences, which was nearly all chess. On inquiry how this difference occurred, he said the *whole field had been sown with the same seed precisely, but that his flock of geese had got into the field while the plants were young, and had eaten off and partially pulled up the wheat, and the consequence was it had turned into chess.* So much for fact No. 1.

Fact No. 2. A friend in Ohio had a large wheat field, through the middle of which, a low swale of marshy, wet land extended. Over all this low ground, chess was, with some slight exception, the only crop, while all besides was fine, plump wheat. His explanation of this result was, that *all the field was sown with the same seed, broadcast, without discrimination, and that owing to the low part of the field being saturated with water when the frost set in, the ground had been thrown up, the roots of the wheat laid bare, and the scanty nutriment they had been able to get, had produced chess in the place of wheat.*

Fact No. 3. I saw a luxuriant field of oats at Manitouwoc, Wisconsin, this season, which had been cleared last fall, and was then surrounded with the original forest, over which no cultivated crops had ever before been sown. The whole field looked remarkably fine, as did all the crops in that region, and I discovered no chess in any part of the field except on one edge. This had been scratched over with the harrow for about two feet in width, and the ground was very hard, while all the remainder of the lot had been well plowed. *On this strip, affording a scanty subsistence to the seed, every particle of the grain was chess. The owner assured me the seed was alike over the whole field.*

Fact No. 4. Mr. Wright, Editor of the Prairie Farmer, told me while in Chicago in July last, he had the testimony of persons of unquestionable veracity, that *they had discovered stalks both of wheat and chess growing out of the same stool, and originating from the same seed, the most careful washing and examination failing to show two separate roots.*

Fact No. 5. Mr. Wright farther assured me, he had equally conclusive evidence that *from the same stalk, producing a head of wheat, a shoot had been thrown out from a lower joint, which produced chess.*

Now here is testimony in favor of wheat and oats producing chess, which, if given on a capital trial before the late Chief Justice Marshall, and not satisfactorily explained, would inevitably have resulted in hanging the criminal. On these simple facts I rest the case. Will P. enlighten and oblige your readers by affording some perfectly satisfactory explanation of the above facts, or acknowledge there is sufficient evidence that wheat and oats can be converted into chess?

In a recent tour of some 2,500 miles through Ohio, Michigan, Indiana, Illinois, and Wisconsin, I met but one person with whom I conversed on the subject who entertained a settled conviction that wheat can not be converted into chess, and he was from the east; and from the evidence on which they base their opinion, I think I may add with all possible deference, their brains must have produced cheat or chess, not to have come to this conclusion. I beg it will be particularly remembered, to avoid the waste of ink and paper, that while I contend that wheat may produce chess, chess is also produced by sowing chess.

R. L. Allen.

We recommend the perusal of the following able letter to our southern readers. Let them recollect that the writer is Virginia *born and bred*, and has now resided some years in the west. His remarks upon the advantages of farming on the Atlantic borders, are particularly valuable, and should be well considered by those at the north as well as at the south, for they are equally applicable to either section of the country.

For the American Agriculturist.

VIRGINIA AGRICULTURE.

Llangollen, Ky., October 23d, 1843.

Dear Sir:—After a lapse of eleven years, I have paid a visit to Virginia, my native state. Feeling a deep and filial interest in her prosperity, and in the welfare of her inhabitants, many of whom are my relations and friends, and all of them a noble race of generous, hospitable, and patriotic men, my attention was naturally turned to their *agriculture*—the basis of national prosperity, individual comfort, and independence.

When I left the state, a rapid tide of emigration to the south and west, was sweeping away much of her population and wealth, especially from the seaboard, and that portion of the state lying between the southwest mountains, and the head of tide-water in her fine navigable rivers. These are the sand-stone, quartz, and granite regions of Virginia; in many places underlayed by fine argillaceous earth. From the base of the southwest or little mountains westward, and from the valley, there was less emigration. Their argillaceous, calcareous, and slaty lands, adapted to wheat, grass, tobacco, and corn, withstood more firmly the impoverishing effects of a system of cultivation, which, though not so defective as that practised in the lower country, was far from the best now in use. Gypsum and clover found their way into the counties of Loudon, Albemarle, and other upland counties, long before I left the state. Timothy and other grasses for grazing, as well as for the scythe, were cultivated in the valley. But in the lower country, although a clover *patch* for soiling was common, and timothy and herds-grass for meadows, especially near the towns, were scattered through the state, there were but few *fields* of clover laid down for the improvement of the soil, and the timothy meadows were soon supplanted by *broom-straw.* To Col. John Taylor of Caroline, Lower Virginia is more indebted for his *Arator* and his agricultural conversations, than even the United States are for his political writings; and to Mr. Ruffin, the editor of the Farmers' Register, and the author of the essay on Calcareous Manures, the people of Lower Virginia, and indeed of the whole tide-water country on the Atlantic seaboard, owe a large debt of gratitude.

In the valley, (fine limestone and slate lands,) the grasses and clover, together with wheat and corn, are extensively cultivated. Large herds of cattle and hogs are raised or fed for market, and the improvement of their lands is in exact proportion to the attention paid to grasses and clover, and the observance of an ameliorating rotation of crops.

On the southern side of the southwest mountains, clover, tobacco, wheat, and corn, constitute the staples. I call clover one of the staples, because I consider it the basis of all good and profitable cultivation in that region; and it is certainly more extensively used than when I left the state. Hence the lands of those who use it are improving.

In the upper end of Louisa county, there are between ten and twelve thousand acres of land, (once in my opinion the bottom of a lake drained by the South Anna, one of the branches of the Pamunkey river,) remarkable for the production of wheat. There is perhaps no equal area of finer land for wheat in the world. They are called the *Green-Springs* land. Mingled with the gray argillaceous loam of these lands, there is much comminuted shot-iron ore. Can it be that this, disintegrating and mixing with the soil, attracts and fixes the ammonia, thus rendering the land so suitable for wheat? The intelligent landholders here use clover and grasses, and their lands are improving beyond their great natural fertility.

For some twenty miles below the Green Springs, the lands are very unequal in quality, and in the degree of improvement. Some judicious farmers, husbanding their manure, and cultivating clover, although growers of tobacco, are improving their lands. But the majority, I fear, are still pursuing the old ruinous system of exhausting crops without proper rotation, and without cultivated grasses to cover their naked fields. Such, when their lands are worn to the bone, and from the want of returns to the soil, will be forced to emigrate. These lands are quartz ore, with much silicious gravel.

Passing lower down, there is a strip of land on

both sides of the North Anna, in Spottsylvania and Louisa counties, and the lower part of Orange, known as *the Forks* and *Ducking-Hole* neighborhoods, in which the lands are essentially different from the quartz-ore and silicious lands above and below them. They are undulating and hilly, with boulders of granite and gneiss, I believe, scattered sparsely over the lands, but in greater abundance near the North Anna. Much of this disintegrated rock is mingled with the argillaceous loam, and wherever it appears, the lands are productive in their original state, capable of easy and great improvement, and very lasting. Every particle of manure tells, and every leaf of clover adds to the fertility of this fine land. Its owners are becoming aware of its comparative value. Many of them are improving it steadily with clover and manures, and they are *reaping* the rich rewards of their labor.

From this strip of land to the head of tide-water on the rivers, the lands are more sandy, and poorer, except on the streams, where the bottoms are rich alluvial, and the hill-sides facing the streams, good tobacco lands, where they have not been worn out by successive crops, without returns of animal or vegetable matter to the soil. In this section of the state, there has been less general improvement than above or below, although I know that clover and gypsum, as well as barn-yard manure, ensure good returns for their liberal use. The spirit of improvement has reached some of the farmers and planters in this region; but they are rare exceptions to the general rule. Corn, wheat, and tobacco, are the staples.

Below the head of tide-water, great improvement on many farms has been the result of *marling*, and the successful introduction of the cultivated grasses and clover. You have doubtless seen an account of the wheat crop at Westover, and other places on James river, averaging 30 bushels to the acre. The use of marl, and the practice of covering the fields with grasses, is extending in all that region, so that the first lands settled in Virginia, and greatly exhausted by injudicious cultivation, are now, in my opinion, becoming the most valuable lands in the state. The means of improvement are as inexhaustible as the marl-banks; and the facilities of transportation, both for this, as well as for the productions of the farms, greater than in any other portion of the state.

The plows and farming tools generally are much improved since I left the state. Good rollers, thrashing-machines, and reaping-machines, are now in use. Two of the latter, one of which I saw, have been used near Richmond the last season, and I heard both spoken of as answering well. They are Hussey's, and McCormick's.

I was particularly struck with the improved style of farming in the neighborhood of Richmond. They have discovered that their lands, even those that are very sandy, can, by judicious management, be covered with grass. And this is the basis of agricultural improvement. Whenever the fields can be covered with a good coat of grass, so great a return of vegetable matter and manure from the animals consuming it, either on the fields or from soiling, or in the form of hay, is, or may be made to the lands, that with a judicious rotation of crops, instead of wearing out or deteriorating, the lands will become richer and more productive. The alluvial lands below tide-water were naturally very fertile, and those that were exhausted from long and unchanged crops, are, I believe, now recovering their pristine fertility under a better system. What a fine country it is! and what a fine race of men inhabit it!—Intellectual, brave, generous, and hospitable. There are no men in the world superior to the descendants of the cavaliers in Old Virginia. Many of them have removed to the west and the south, actuated by the spirit of adventure, or driven by necessity, or lured by the wiles of land-speculators, or dazzled and blinded by the brightness of better lands beyond the mountains. Let those who remain in Lower Virginia, and who can now barely live on their lands, instantly begin to improve them. They are *easily improved;* and when improved, are more valuable than any they will obtain farther from the seaboard at the price of their improvements. Let them bear in mind, that land which brings only ten bushels of wheat, or 20 of corn to the acre, *where* these articles can be sold for $10 per acre only, is more valuable for cultivation, than land which will bring double those quantities, where the *prices* for them will be less for the produce of an acre. When oats were worth 30 cents a bushel, and corn 50 cents, in the city of Richmond, we could with difficulty obtain 12 cents for oats, and 20 cents for corn. Last year corn sold at 12 cents per bushel in Louisville.

Many years ago, the Hon. James M. Garnett, one of nature's noblemen, whose death we have been lately called to deplore, in an address to the Agricultural Society of Fredericksburg, of which I was at that time a member, stated some cases in which manure from cow-pens, I think, permitted to remain on the surface for some time before it was mingled with the soil by plowing, seemed to produce a more beneficial effect on the crop, than when immediately turned under. The idea was considered novel at that time. But in conversing with a very intelligent, observing, practical farmer near Richmond, during my late trip to Virginia, he assured me that his own experience had convinced him of its truth. And I observed in returning home, that many of the excellent farmers in Lancaster county, Pennsylvania, through which I passed on the way from Philadelphia to Pittsburg, plow their lands first, then scatter the lime and manure, and then barely mingle them with the surface-soil, by a light second plowing, instead of turning them deeply under. Now, as these men are successful practical tillers of the earth, I presume they would not pursue a system in the application of manure, unless *experience* had demonstrated its advantages. Is more fertilizing matter attracted from the atmosphere than is lost by evaporation?

I had no adequate idea of the quantity of lime used in the agriculture of Pennsylvania, till I passed through the state, and saw the numerous lime-kilns, and the piles of lime in the fields. What this substance is effecting for the interior, *marl* is doing for the seaboard. But the facilities of transportation, without the payment of tolls on turn-

pikes or railroads, gives a decided advantage to the dwellers on the navigable rivers, bays, and shores of the Atlantic.

With due attention to a proper rotation of crops, the collection and application of manure, marl, green sand, and lime, with in all cases a good cover of grass or clover, when the fields are not in summer cultivation, the land from Boston to Florida point, in my humble opinion, will be the most valuable in America; and certainly none along this extended line more valuable for soil, climate, or the productions to which they are adapted, than those of Lower Virginia. Let them appreciate their natural advantages, and improve them, and they need not encounter the toil, anxiety, and expense of removal to other localities less favored in all respects except one—richer land, less productive of profit though than theirs, if only moderately improved and properly cultivated.

I have only to add, that wherever I saw agricultural journals in the house, on my travels, I saw improvement on the farm. From this I was led to conclude, that agricultural publications, instead of making mere fireside farmers, as has been objected to them, tend to the reformation of bad farmers, and to make the good still better.

JOHN LEWIS.

For the American Agriculturist.

FINE WOOL SHEEP.

Galway, Saratoga Co., October 20, 1843.

I have noticed in your periodical several communications upon fine-woolled sheep, and sheep-husbandry, with which I am *well* pleased in *many* things. Yet there are one or two particulars, in your remarks upon "Fine-woolled Sheep," in the July No., also in the letter of Mr. Collins, in the September No., upon which, with your permission, I beg the privilege to offer a suggestion or two.

If I rightly understand you and Mr. Collins, you seem to take it for granted, that there are no flocks of Merino sheep in our country, which have not been so mixed up with the different varieties, as to make a complete "*olla 'podrida*;" and none from which pure bloods, of any distinct breed, could be obtained with which the American farmer might improve or renovate his flock, except the flock of Mr. C., recently imported from France. (*a.*)

Now, while it is lamentably too true, that a large proportion of wool-growers have greatly injured their flocks by the miserable crosses to which you allude, it is also true, that there are exceptions to this rule. I have a flock of Paular Merinos which I verily believe are of as *pure blood* as any imported from Spain.

The sheep from which mine descended, were imported by the Hon. William Jarvis of Wethersfield, Vermont, while consul to Spain. Mr. Alfred Hull of Wallingford, Vermont, procured a small flock of these Paulars some 20 years since, before they had been crossed with any other variety. He has uniformly *rejected* the different *improvements* which have been proposed, and has kept them unmixed with other breeds, and has now a fine flock of some 500, from which he is yearly supplying a large number of wool-growers with some of the very best full-blood Paular bucks. I commenced my flock by a selection from this flock of Mr. Hull's, five years since, and have not crossed them with any other variety. Mr. Hull is my brother-in-law, and I have been perfectly familiar with the history of his sheep. If we have not *pure* blood Paular Merinos, I know not what pure blood means.

Again, you say, speaking of Mr. Collins' Rambouillet Merinos, that "in their form they resemble the Paular Merinos. They are also from one tenth to one fifth larger in carcase—give more wool for their size, and of better quality."

In giving a more minute description of Mr. Collins' flock, you say, that "Grandee, Mr. Collins' imported buck, weighs 150 pounds—that one year's growth of wool, unwashed, weighed 12¾ lbs.—and his ewes averaged 6 lbs. 9 oz.; deduct one fourth for washing, leaves an average of 4 lbs. 15 oz." Now put these two statements together, and the reader would infer that the Paular Merinos were neither *very heavy* in carcase nor fleece. Whereas, the fact is, that it is not uncommon for bucks of the Paular breed to weigh from 160 to 180 lbs. at full growth. One of my stock bucks, only two years old in May last, was weighed a few days since in presence of several witnesses, and though not in extraordinary condition, his weight is full 150 pounds. (*b.*)

Nor is it uncommon for bucks of this breed to yield from 12 to 14 lbs., clean washed wool. (*c.*) I showed a buck last year, then but three years old, whose fleece weighed, *well washed*, 12 lbs. 11 oz. I sold that buck with several others to a gentleman from Wisconsin. Had I kept him until this year, when he would have been full mouthed, I have no doubt he would have given 14 lbs.; as bucks of this breed frequently do that at full growth. I sheared in June last 90 sheep—62 breeding ewes, 27 yearlings, and 1 buck two years old. The weight of the 90 fleeces, washed very clean, and free from filth of every kind, is 478 lbs. 9 oz.; being an average of 5 lbs. 5 oz. per head of *clean washed* wool.

I have sold from my flock all the bucks I could raise at $10 per head, and am by no means able to supply the demand. You speak of the comparative fineness of the Rambouillet and Paular wool. I have no means by which I can form an opinion in this respect, but will only say that I have sold the wool from my Paular flock this year, to a manufacturer for 40 cents per pound; being $2.12½ per fleece. *Perhaps* the Rambouillet wool is very much finer. (*d.*)

We do not claim that the Paular is as fine as the full-blood Saxony; but the weight of fleece we believe *equal* to any fine-woolled sheep now in America. Neither are they surpassed in beauty of form, weight of carcase, and strength of constitution, by any of the fine-woolled varieties that I have ever seen, or an account of which has fallen under my observation.

R. A. AVERY.

(*a*). What Mr. Collins' views about the purity of Merinos in this country are, we shall leave him

to explain for himself. We spoke of the mixture of those sheep with others as a *general* thing, which Mr. Avery acknowledges in his next paragraph. He should be more particular in stating what we said, as his construction of our meaning in this last sentence is entirely different from what we wrote. For "*none* from which pure bloods, &c., could be obtained, &c., *except* the flock of Mr. C.," read, "*among* those pure-bred *flocks*, &c., that undoubtedly superior to all others *within* our *knowledge*." (See page 99 of current volume of this paper.) "None" and "except" are quite different words from "among" and "within our knowledge."

(*b.*) If Mr. Collins' Grandee was put in high condition, we are confident he would weigh 200 lbs. easily. If Mr. Avery has Paular Merinos which "it is not uncommon to weigh from 160 to 180 lbs.," we can only say that such weights are very *uncommon* among any pure-breds that we ever saw, and we have inspected thousands bred in this country, and some hundreds imported direct from Spain. Several gentlemen of our acquaintance who have kept Paular Merinos, which they procured from Col. Humphrey's importation, corroborate the above assertion.

(*c.*) We wish Mr. Avery would send us a clean washed fleece weighing 12 to 14 lbs., for we never saw such a one from any fine-woolled sheep's back of a pure breed, save the Rambouillet. If he will, we promise to pay him its full value. The only true test of *clean* wool is to *scour* it ready for manufacturing. Mr. Collins' *unwashed* wool *we know* to be quite as *clear of dirt* as many a lot *clean washed*. We say all this without meaning to question the fact that Mr. Avery's wool is not clean and thoroughly washed. We did not state the whole truth regarding the clip of Mr. Collins' sheep, for he was too modest to allow us to do so, saying the story would not be believed. We now say, that several of the ewes' fleeces weighed from 8 to 9 lbs., and one weighed 10 lbs., free of all tags, and very clean wool for unwashed. It was one year's growth only. We have sent Mr. Avery a sample of this wool, that he may judge of its quality. The wool of the Rambouillets is *very even* over the whole body, being nearly as fine on the rumps and thighs, as on the back, which makes a great difference in the value of a fleece, for it samples principally as *first* and *second* qualities, leaving scarce anything for the *third* and *fourth*. We beg especial attention to this fact.

(*d.*) Since the above was in type, Mr. Avery has called at our office with samples of his wool. They are certainly very fine and even; but whether these were *average specimens* of the *whole fleece* Mr. Avery could not say. To decide the relative merits between Mr. Collins' and Mr. Avery's sheep, in their wool, it would be necessary to compare the fleeces of both together; for it is not a *fine lock here and there* chosen from a sheep's back, which shows the value of a fleece, when there is *coarse wool* enough on *other parts to counterbalance* this; but it is the *general evenness of the whole fleece*, as remarked above, and herein consists, as we contend, *one of the chief excellencies* of the Spanish Merinos at Rambouillet. He assures us that Mr. Hull, of whom he obtained his flock, purchased them in the year 1823, before the Saxons were brought into this country; they could not, therefore, have any cross of this blood in them; and Mr. Hull has continued to breed them free from any other than his own blood of Paular Merinos. From Mr. Avery's description, also, we have no doubt that his Paulars have increased in size since coming into his possession, and that they have been improved in their forms, he having bred with an eye to both of these points. If, therefore, this be correct, what we have said about the weight of Paular Merinos under note (*b*) will not apply to his sheep. It is our intention to visit Mr. Avery's flock at shearing time next year, and be able to judge more particularly for ourselves; the public shall then hear from us again on these matters, for we are desirous of giving every breeder all the justice that is due him. We go for the best animals without any reference to those who own or have bred them.

For the American Agriculturist.

SUPERIOR BREAD.

Melt 2 oz. of butter in a pint of warm water, then add a small tea-spoonful of salt, 1½ lbs. of flour, and two table-spoonfuls of yest. Now beat well the yolks of 3 eggs and stir them in, then beat the whites to a stiff froth and stir them in also. They must be the last thing put in. Beat the whole well together from 8 to 10 minutes, or until the mixture will not adhere to the spoon. Fill the pans about three quarters full and set it to rise, which will take from 3 to 4 hours. It must be baked in the pans in which it is set to rise, and is to be eaten moderately warm.

A Dutchess County Lady.

For the American Agriculturist.

SOAP-STONE GRIDDLES.

As the season of *pancakes* is coming on, it may be interesting to some of your readers to know, that a griddle made of soap-stone is greatly superior to the ordinary kind made of cast iron. They re-

quire less greasing, and are not subject to the frequent changes of heat and cold which occur to the thin iron ones. They should be of any size required, and about ¾ to 1 inch in thickness. I have one in use, and the cakes baked on it are better than from the ordinary kind, and it is giving greater satisfaction to those in the culinary department. C. S. Jr.

For the American Agriculturist.

MOVEABLE FENCE.

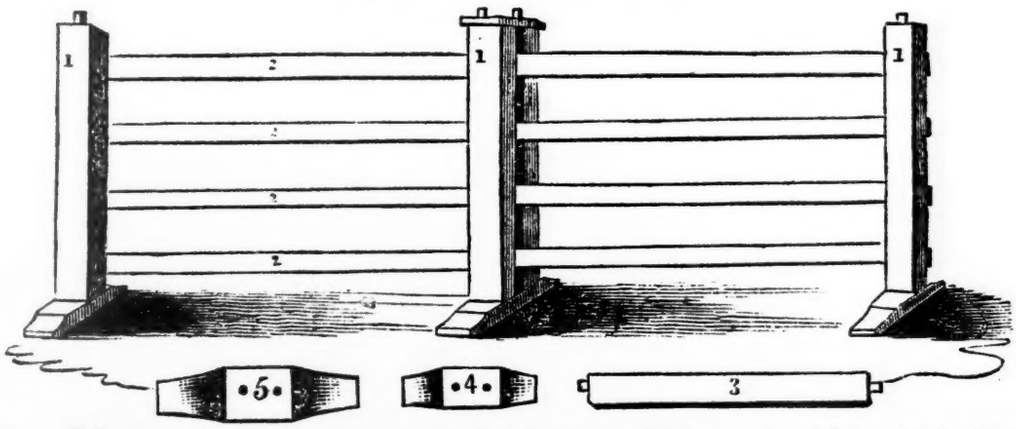
New York, November 6th, 1843.

When I visited the beautiful farm of J. F. Sheafe, Esq., at High Cliff, Dutchess county, the past summer, among other things which struck my attention there, was a moveable fence; and, as it is both handsomer and cheaper than the usual method of making these, as in England, of hurdles, I have thought a description of it might not be without interest to those desiring to put up something of this kind.

1, 1, 1, are posts made of joist, 3 inches by 4, and 4 feet long, with 2-inch pivots in each end, to fit into the holes of the cap 4, and step 5; 2, 2, 2, 2, are slats 12 feet long, 4 inches wide, and 1 inch thick, nailed to the posts 1, 1, 1, making each four slats with their posts, an independent length of fence; 3, is a post the same as 1, 1, 1; 4, is a cap of white oak plank, 12 inches long, 7 inches wide, and 2 inches thick, with two 2-inch auger-holes bored through it at proper distances, into which to insert the top pivots of two of the posts when set upright, to form the fence; 5, is a step, a piece of plank the same as the cap 4, but 3 feet long. It has two holes for the lower pivots of the posts to fit in, corresponding with those in the caps.

Two boys can take down or put up 40 rods of such a fence in an hour; and it is so light, that it can be transported to any part of the farm with

MOVEABLE FENCE.—(Fig. 57.)



great ease. When neatly made and painted, it has a handsome appearance, and proves an effectual guard for all orderly stock. By taking it down in the winter, and putting it under cover, it will last a long time. It may be made very cheap by using slabs for the caps and steps, and split poles for the slats.

Mr. Sheafe showed me another kind of moveable fence with pickets, which I may describe hereafter; but I rather prefer this as being more simple. S. Allen.

For the American Agriculturist.

CORN FOR SOILING AND FODDER.

Rahway, N. J. November, 6th, 1843.

The past season I sowed some corn broad-cast, and at the same time planted some with the drill by way of comparison and experiment. My drill is an English machine, such as they use for drilling beans. It sows the rows three feet apart, which allows the cultivator to work between them. I plant two rows six inches apart, and three double rows three feet from each other. The under leaves of the drilled corn remained green, while the broad cast turned yellow nearly to the top; and I am of the opinion decidedly, from this experiment, that drilling is much the best method, for it gives more and better fodder. I had nine good wagon-loads from less than an acre of land, when it was about two thirds cured. I have husked a part of this, and am of opinion it will turn out 25 bushels of shelled corn to the acre. Going through it once with the plow, and once with the cultivator, was all the after-culture. The fodder is of the best quality. The ground should be well manured.

Buckwheat.—The common time for sowing buckwheat with us, is from the 12th to the 15th July. Owing to the drought this year, my buckwheat was not sown until the 27th and 28th. The ground was extremely dry and dusty, and the growth was tardy, comparatively, until the rains of September. On the 28th we had a severe frost. I cut down the buckwheat at once, green as it was. Not one half of the grain had turned black; the top of the straw being much of it in flower, and nearly half the grain in the milk. Soon after this I raked it up in bunches, and let it stand until the middle of October, when I thrashed it, and to my surprise, few imperfect kernels were to be seen—nearly the whole was plump and fully ripe. My opinion is that two causes operated to ripen the berry after cutting the buckwheat. The first was its being bunched up, thus preventing the sun from withering it; and the second, that there was juice enough in the stock to fill out the grain. This also shows that a crop of buckwheat may be raised even if it is sowed as late as the last of July.

C. Baker.

For the American Agriculturist.

MANUFACTURING INDIGO.

About the year 1797, I bought in London two chests of indigo, said by the seller to have been manufactured by the late General Wade Hampton of South Carolina. It was a brilliant, copper-colored indigo, and proved in consumption equal to any Bengal I ever used. Some twenty years since I opened a correspondence with General Hampton on the subject of manufacturing indigo in this country, when he informed me "that raising cotton paid the planter much better than cultivating the indigo plant; that the manufacture was injurious to the health of the workmen; and that the art of manufacturing it was lost in this country, at least in the most essential particulars, for want of a continuous practice."

In the year 1828 I corresponded with Elias Horry, Esq., then chairman of the Charleston Agricultural Society, on the subject of indigo and madder. The following is an extract from Mr. Horry's letter in answer: "Our Agricultural Society will consider itself much obliged by the important and scientific information which you have communicated, respecting those valuable dye-stuffs. I have placed your letter into the hands of the Editor of the Southern Agriculturist, in order that the information it affords respecting indigo and madder may be known as soon as possible."

In the month of March, 1830, I sent an article to B. Silliman, Esq., Editor of the Journal of Science, more extended than the former, which was published in the number for May of that year.

In the years 1828 and 1830, cotton afforded to the planter so large a profit, that no attention was then paid to the cultivation of minor articles; but so little profit is now derived from this cultivation, that madder, sumach, and indigo, particularly the two last, as being annual crops, will be far more lucrative. I am induced, therefore, to send you a copy of what I have formerly written on indigo, that it may be again brought to the notice of our southern agriculturists.

The value of the indigo consumed in this country in 1829, can not be estimated at less than two millions of dollars. Of the quantity consumed, there was made in the United States about two hundred thousand pounds, or one tenth part of the consumption. As the consumption is rapidly increasing, from the increase of population from the extension of manufactures already established, and from the introduction of new articles of manufacture, I consider it an object of national importance, that it should be better made, and more extensively cultivated in this country.

I have been acquainted with the indigo market for more than thirty years, and never remember it in so depressed a state as it has been for the last twelve months. The average price of the sales for the last year can not have been much over one dollar per pound. The average price of the imported has been about one dollar and fifteen cents, and of that made in this country, about fifty cents. To endeavor to give such instruction to the planters as will enable them to make an article fully equal to the imported, is the object of this communication.

The quantity of indigo made from an acre of the plant has been differently estimated by almost every maker from whom I have obtained information. General Wade Hampton, who many years since made the article in South Carolina, informed me, that he obtained sixteen pounds of fine indigo from the plant taken from a half acre, or thirty-two pounds per acre. Other estimates make the quantity much larger, some nearly two hundred pounds to the acre. Taking the average of the different estimates, it would be at least fifty pounds. It will appear by this estimate, that it would require forty thousand acres of land to raise a supply for the present consumption; and as the demand is rapidly increasing, it is more than probable, that in ten years, it will require the product of eighty thousand acres to raise a supply for home consumption.

There are four points to be attended to in the making of indigo, which require much judgment, aided by practical skill. These are, the time of cutting the plant, the degree of fermentation to be given in the steeper, the degree of oxydizement of the coloring feculæ, and the extrication of foreign matter from the pulp after the indigo is made. Three of these processes being purely chemical, it is not, therefore, surprising that ordinary workmen should frequently fail in producing a good article. There is probably more loss sustained by our planters from the ignorance of the operators, than the whole value of the article now sold.

The plant should be cut when at maturity, as it will then afford a fine color; but if cut too late, a portion of the color is then lost, and an indigo of worse quality is obtained. Mr. Dalrymple informed me, that the plant should be cut when in full flower, after the weather for some days has been dry. Another celebrated maker of indigo, asserts that if the plants are suffered to stand till they run into flower, the leaves become too dry and hard, and the indigo obtained from them proves less in quantity and less beautiful; the due point of maturity is known by the leaves beginning to grow less supple, or more brittle.

It appears that the makers of indigo differ as to the time of gathering the plant. It is greatly to the interest of our planter that they should ascertain, by direct experiment, the proper time of gathering the plant.

When the plant is gathered, it has to undergo a process by immersion in water, for the purpose of extracting its coloring matter. This operation is performed in two ways—by fermenting the green plant in a steeper, or by first drying the leaves and then simmering them in a boiler. The latter process is now pursued by some of the best makers in Bengal, and has apparently an advantage over the old process.

When the green plant is fermented in a steeper, and the process is carried a little too far, the coloring matter will become dark, and is said to be burnt—if carried a slight degree farther it will be black, and of course the indigo will be very much injured. Nine tenths of the indigo made in the United States partakes more or less of this character, and has evidently been injured by an excessive fermentation. To observe a due degree of

fermentation in the steeper is the most difficult point in the whole process of making indigo; for should not the fermentation be carried far enough, a considerable loss of coloring matter will be the result. It is necessary, therefore, to carry it on to a certain point, and to draw it off the instant it arrives at that point; and this can only be known by a skilful observer who has obtained his knowledge by practice.

There is no chemical operation so difficult to describe as that of fermentation, and I almost despair of making myself clearly understood by practical workmen in the following description of the steeping process.

Fermentation has been divided by chemists into four kinds, the panary, vinous, acetic, and putrefactive. The kind of fermentation given in the indigo-steeper is evidently of that kind called panary, or the first stage of fermentation. It is known to be the panary by the large quantity of carbonic gas given out, which, rising to the surface, floats on the top, covered with a thin pellicle of the liquid. The difficult point for the operator to distinguish is when it arrives at that degree of fermentation, and begins to assume the acetic. The same difficulty occurs with the woollen blue dyer; and the losses so frequently complained of by the vats being out of order, and often being irrevocably lost, arise from the fermentation being permitted to proceed too far.

The following directions are given as a guide for those who may be engaged in the making of indigo. While the plant is in steep, draw off a little of the water, and with a pen dipped in it make a few strokes on white paper. The first will probably be high-colored, in which case the indigo is not sufficiently fermented. This operation is to be repeated every quarter of an hour, until it loses its color, when it will have arrived at its true point of fermentation.

Let a small hole be made in the stopper, six or eight inches from the bottom, exclusive of the opening or aperture, for drawing off the impregnated water. Let this hole be stopped with a plug, yet not so firmly but that a small stream may be permitted to ooze through it. After the plants have been steeped some hours, the fluid oozing out will appear beautifully green, and at the lower edge of the cistern, whence it drops into the battery, it will turn of a copperish color. This copperish hue, as the fermentation continues, will gradually ascend upward to the plug, and when this circumstance is perceived, it is proper to stop the fermentation.

During the progress of this part of the business, particular attention should be paid to the smell of the liquor which weeps from the aperture, for should it discover any sourness, it will be necessary to let the fermenting liquor run immediately into the battery, and lime-water of sufficient strength must be added, until it has lost its sourness. As it is running off it will appear green, mixed with a bright yellow or straw color, but in the battery it will be of a beautiful green.

Another maker has given the following description of the fermenting process.

When the plant is gathered, a large quantity is put into a vat, and some wood laid above to prevent its rising above the water. The mass begins to ferment sooner or later, according to the warmth of the weather, and the maturity of the plant—sometimes in six or eight hours, and sometimes in not less than twenty. The greener the plant, the more rapid the fermentation. The liquor grows hot, throws up a plentiful froth, thickens by degrees, and acquires a blue color inclining to a violet—at this time, without touching the herb, the liquor impregnated with the tincture is let out, by cocks in the bottom, into another vat placed for that purpose, so as to be commanded by the first.

The boiling process, for extracting the color from the dry plant, was obtained from Mr. Dalrymple, who had for many years been an extensive indigo maker in Bengal. He says: "Take an iron, brass, or copper boiler, fill it within three inches of the top with the plants, press down with stones, and cover the plants with water. The liquor must be heated, not until it boils, but until it begins to blubber, or simmer. The water, by this time, will look greenish, then draw it off into a shallow vessel or vat, and beat for one or two hours to incorporate oxygen with it. On taking some of the liquor in a white saucer, little particles will appear in it as big as a pin's head and smaller, then stop beating, and throw in a little lime-water, upon which the indigo will precipitate to the bottom, and the supernatant water will look like brandy. The water has now to be drained off to a level with the top of the sediment, lay the sediment on a cloth to drain, and when stiff enough put it into moulds to dry.

I have been recently informed, that many first-rate makers of indigo in Bengal condemn the practice of obtaining it from the dried leaves, on the plea that the article obtained is no better, and is much less in quantity. If any of our planters should be disposed to try the process, it will be necessary to inform them, that should the leaves, between gathering and drying, be subject to fermentation, only a small portion of coloring matter will be obtained, and that the loss sustained will be as the degree of fermentation.

During the precipitation of the coloring feculæ the coarsest particles, possessing the greatest specific gravity, subside first, constituting the lower strata of the pulp, and the lighter and finer particles subsiding the last, form the upper part. It is necessary that indigo-makers should take advantage of this circumstance, by first taking off the upper layer, and moulding it by itself, and the lower by itself. By this means they may obtain several qualities of indigo from one mass of pulp.

It appears from analysis made by Bergman, Quatremere, and other chemists, that indigo of good quality does not contain more than from 46 to 47 per cent. of coloring matter, and that the very best samples do not contain more than 48 per cent.

The following table will exhibit an analysis of indigo of good quality, and of the menstruua in which the impurities are soluble.

Mucilaginous parts separable by water -	- 12
Resinous parts soluble in alcohol - -	- 6

Earthy parts soluble in acetic acid - -	22
Oxyde of iron soluble in muriatic acid - -	13
Coloring parts almost pure - - - -	47
	100

There can not be a doubt that manufacturers of indigo might produce, by attending to the analysis made by chemists, an article far superior to any hitherto offered to the public. It will also appear certain, when experience shall have confirmed the value of a superior indigo, that a more than remunerating price could be obtained for a purer article. For certain purposes a pure indigo would command double, and even treble prices, provided the supply were not too great for the consumption. This being the case, it would be well for our manufacturers to pay some attention to the subject, and endeavor, by some easy, unexpensive process, to bring it to as great perfection as possible. To promote this object, I offer the following extracts and observations.

Bergman dissolved, by means of ebullition in water, a ninth part of the weight of indigo. Quatremere also separated, by means of water, the parts which are soluble. He states their quantity to be more considerable, the worse the quality of the indigo; and that, after this operation, the residuum has acquired the qualities of the finest indigo. He therefore proposes to purify what is of inferior quality, by boiling it in a bag, and renewing the water till it ceases to acquire color.

If sulphuric acid be diluted with water, it attacks only the earthy matter that is blended with the indigo, and some mucilaginous ingredients.

Muriatic acid digested or even boiled with indigo, takes up the earthy part, the iron, and a little extractive matter, which colors it yellowish brown, but without attacking in any manner the blue color.

Acetic acid, commonly known as vinegar, appears, by the table of contents, to take up a larger portion of impurities than any other acid, and being at the same time the cheapest, I would recommend our indigo-makers to boil their pulp in vinegar and water; by which process the whole mass will be superior to any indigo now offered in the market.

It is evident from the analysis, that to make indigo far superior to any now brought to market, requires only an application of known facts to the art of making it. The following are well ascertained facts, that if indigo be boiled in water containing muriatic acid, twenty-five per cent. of the impurities contained in the best samples would be extracted, or if in vinegar and water thirty-four per cent.

The best Bengal indigo, and I never remember it in a more depressed state, is worth, wholesale, one dollar eighty cents per pound. The average value of all the indigo imported from foreign countries is about one dollar and fifteen cents per pound, while the average value of that made in the United States is not more than fifty cents, and this great difference in the value is owing almost entirely to the great impurity of the article. The first object with our manufacturers, therefore, should be to make their indigo equal in quality to the best Bengal, and the second, to go as far beyond them as is practicable.

In the best samples of the indigo of this country, there is evidently too much extractive matter, and there is no doubt that this defect arises, in a great measure, from their taking the pulp from the beater, instead of their running it into a vat of clear water, and after well agitating it there, letting it settle in the third vat. This third receiver should undoubtedly be added where it has not been already done. Those manufacturers who would wish to avoid the expense of a third receiver, may fill up the beater with fresh water, after drawing off the first liquor, and perform the operation in the same vat.

The greatest improvement I can at present suggest, would be to boil the pulp taken from the vat by steam heat, for fifteen or twenty minutes, in water containing as much muriatic acid, or strong vinegar, as would give to the liquor a strong acid taste. This operation can also be performed by placing a pipe in the beater from any steam vessel.

Muriatic, or acetic acid, besides the oxyde of iron, dissolve the carbonate of lime, red resin, and alumina, contained in the indigo, and by being mixed with water, the greater portion of the extractive matter would be taken up at the same time. By boiling the pulp in water strongly impregnated with these acids, the indigo remaining would be from twenty-five to thirty-four per cent. better than any hitherto made, and a price, more than equivalent to the difference in the loss of weight and expense of working, would be obtained from the consumer.

I have been informed by some South Carolina planters, that, owing to their inability to proceed with the fermentative operation as rapidly as the crops require, a portion is often left on the fields for two or three weeks after the plants have arrived at maturity. This circumstance alone is sufficient to blast the interest of the planters. Their interest would be much better consulted, by gathering in the crop, drying it, and extracting the coloring matter by the simmering process. This difficulty is obviated in Bengal by their planting the seed in successive periods, so that one crop shall ripen a week or more after the other, each crop being sufficient to supply one set of tanks during the period of maturity.

Dyers as well as indigo-planters would be highly benefited by attending to the analysis of indigo. Were they, when a superior color is wanted, to boil the ground indigo in a bag as described by Quatremere, there would be no difficulty of obtaining the desired result from indigo of any quality.

Of the two essential objections, stated by the late General Wade Hampton—the first, "that cotton paid better than indigo," has been reversed by the great depression in the value of cotton. The second, "that it injured the health of the negro," may no doubt be easily obviated by precautionary means. The beating process is probably the sole cause of the unhealthiness of the manufacture. So rapid is the absorption of oxygen by the coloring feculæ, during the process of beating by the workmen, as to render the surrounding atmosphere

totally unfit to sustain life; those workmen, therefore, who are standing immediately over it, must be seriously injured. There are thousands of ingenious Yankees who could construct a machine to be turned either by man or horse-power, that would do the work more completely than hand beating, and the horse or men employed be at sufficient distance from the vat to sustain no injury. I presume that ten or fifteen feet from the vat would render the operation perfectly safe.

WILLIAM PARTRIDGE.

FROM the numerous communications with which we have been favored, upon the late course and conduct of that immaculate journal, which *modestly* styles itself, "A *Farmer's Library* of the *most comprehensive* kind"—"The *best exponent* of American Agriculture, both at home and abroad"—"Not only the cheapest but the *best Encyclopedia of Practical* Agriculture existing," &c., &c.; we select the following *jeu d'esprit*, as hitting off a couple of its gross errors and absurdities in admirable style. We only regret that the writer has not given his own name to the communication; but we think his "neighbors," who proved so obstinate at conversion, will not be slow to recognise the sound jurist and eminent practical farmer in his good-humored witticisms. We must confess, to our sorrow, that we are really quite unable to give our correspondent any information upon the subject of determining the ages of horned sheep by the rings upon them, being in that respect in as great a dilemma as himself; for at the late Orange County Show, we had the curiosity to count the rings on the horns of three Merino bucks, and found one had 53, a second 57, and a third 62! yet the owner declared, upon questioning him, that the first two were only 3 years old respectively, and the last 4 years old. In its October No., the Cultivator says, that "the improvement of animals, or the science of crossing, we consider as but in *comparative infancy*." Perhaps the cattle that *shed* their horns at 3 years old, and the sheep which indicate their ages by *rings* upon their horns, are the result of this improved, scientific crossing, which for a long time has been silently pursued by these very *learned*, *practical*, and *experienced breeders*, and with which results the world is soon destined to be astonished. We must fain refer "A Learner" to the editors of the Cultivator, not doubting that he will be able to obtain from them full information upon the points which seem to have got him into so much hot water with his neighbors. But a truce to badinage. There is scarcely a number of the Cultivator which does not contain more or less gross errors on nearly every subject upon which it attempts to write; to point these out were an endless task, and we henceforth dismiss it with the contempt which it merits. We can only say to all those desirous of countenancing humbug, they will now find plenty of it in its stupid pages. From its definition of the word "shed," &c., the next publication which we shall look for from this renowned press, is an "Improved" Dictionary, when Johnson, Walker, and Webster, may consider themselves as laid on the shelf, and no longer as authority in the matter of defining words.

For the American Agriculturist.

AGES OF ANIMALS

MR. EDITOR:—I have read your rejoinder to the rebuke of the Albany Cultivator, and although you make out a pretty fair case for yourself, yet after all, I think I can convince you that it is somewhat *presumptuous* on your part, to compare yourself in any respect with men of the *practical* knowledge and *accurate* observation of the editors of that paper. You may, to be sure, have been conversant with the various breeds of cattle in England; you may know what constitutes a fine animal; may understand the principles of correct breeding, even better than the editor of the Albany Cultivator, as I think it is very evident you do, from your criticism upon the communication in that paper, which gave such offence; but after all, when you come to look into the peculiarities of the different races of animals which occupy so much of the attention of farmers, and to investigate their distinctive habits, I think I can show, and that you will frankly admit, that you are far behind the above *able* agricultural journalists.

To do this, I will refer you to the August number of the Cultivator, page 134, where you will find an editorial article upon the "Age of Animals." It is there stated, that "the ages of all horned sheep may be known by their horns, which show a ring annually to the end of their lives." Now I have reared many sheep, but for the want of that intimate knowledge and accurate observation of their peculiar habits, which so distinguish the editors of the Albany Cultivator, I had never learned this important fact before; and I presume you, and the great mass of your readers will admit they are indebted to these same gentlemen for this piece of useful information. I made a practical application of this knowledge during our last cattle show. I placed myself beside the sheep-pens, where there were very many fine-looking, and apparently young bucks, of various breeds. I stood there just as the committee were coming round to make their examination, preparatory to awarding premiums, with the Albany Cultivator in my pocket, determined to expose the owners of the bucks, if I found them misrepresenting their ages to the committee, as they had to me.

The first buck examined was indeed a fine-looking one, considering that he had seen upward of *fifty* winters, with a magnificent pair of horns. The owner stated him to be *three* years old only!

"Gentlemen," said I, "this man is imposing upon you; that buck is upward of *fifty* years old."

The chairman of the committee smiled, and some of the other members looked as though they thought a deranged man should not be permitted to interrupt their proceedings. I was not disturbed at this, for I was enjoying in anticipation the triumph I was about to achieve over them by the aid of the Albany Cultivator. The chairman made a remark, designed to illustrate the absurdity of my supposition, that a sheep could live fifty years; whereupon, I drew from my pocket the August number of the Albany Cultivator, and at page 134 read to the committee, as follows:—

"*The ages of all horned sheep may be known by their horns, which show a ring annually to the end of their lives.*"

"Now," said I, "gentlemen, be good enough to count the rings on that buck's horns, and you will find, as I have, that they are over fifty!"

This was the moment of my triumph. It was, however, but for a moment. I found that knowledge, such as I derived from the Albany Cultivator, was doomed to be trampled upon by ignorance. The chairman said bluntly, that they knew more about sheep than all that, and that what I had read was "book-farming," which they did not think much of, and walked on, leaving me to be laughed at by a set of ignorant boys, for saying that a sheep was more than *fifty* years old. I know, however, that you, Mr. Editor, will more properly appreciate such knowledge, and will, without questioning this mode of determining the ages of "horned sheep," admit that it is new to you.

Again, in the next paragraph of the same article, the editors, speaking of the mode of ascertaining the ages of cattle, remark, that "horns are shed at the end of three years, and they are replaced by other horns, which, like the second teeth, always remain."

Is it possible, said I to myself, when I read this paragraph, that I have been familiar with young stock from my childhood, and never have noticed this curious fact! It must, however, be so; for here it is in black and white, in the Albany Cultivator; though I am sure they have neglected to state another curious fact necessarily connected with this, but which they undoubtedly know, and that is, the new horns *spring out like mushrooms in one night, as large as the horns shed;* for all my three-year-old stock have new horns, larger than those they had last winter. Thus I satisfied myself, for the want of that accurate observation which would have led me long ago to know this curious phenomenon. Having, however, learned it, I was determined to have a little of that sort of half-malicious enjoyment which arises from showing that you know more than your neighbors; and moreover, I thought this upon the whole justifiable, from the fact that they had refused to take the Cultivator, though I had from year to year urged them to do it. So with the August number of that "*valuable paper,*" as all the correspondents say, in my pocket, I happened over to my next neighbor's, and found him with his three boys, situated exactly right for displaying my knowledge. They were carting out the compost-heap upon the meadow, for top dressing, with a pair of three-year-old steers before the old oxen, by way of training them more perfectly. After a few common-place remarks, I asked him if he knew those steers shed their horns next spring? and that all cattle shed their horns at three years old? The old gentleman's shovel at once rested upon the ground; his under jaw fell a little; and after gazing at me for nearly a minute, with an inexpressible wonder depicted in his face, he said, "What upon airth are you talking about?" The boys seemed ready to roar with laughter; but respect for the old gentleman, and perhaps a little for myself, restrained them. I told him it was truly so, and I could prove it; and again with an air of confident triumph, drew forth the August number of the Albany Cultivator, and read the passage above quoted, remarking that though such knowledge was of no very great practical benefit, still it was pleasant to understand the peculiar habits of the animals with which we are so familiar, and that his ignorance of this curious fact, showed how much he had lost by not following my advice, and taking the Cultivator. But here again I was met by the incredulity of ignorance. The old gentleman maintained there was no such thing as young cattle shedding their horns, and said if I had no better reason than that to urge in favor of his taking the Cultivator, he should never take it, adding the usual sneer upon "book-farming."

Now Mr. Editor, will you aid me in this matter, and give me the result of your observation on the method of determining the age of "horned sheep" by the "rings on their horns;" and especially give me some further proof that cattle shed their horns at the "end of three years, which are replaced by other horns, which, like the second teeth, always remain," so that I may convince my obstinate neighbor of a fact which he has failed to notice through a long life, though during all that time he has been familiar with cattle of all ages.

A LEARNER.

P. S. Since writing the foregoing, the October number of the Albany Cultivator has come to hand, and I learn from a note of the editors on the first page, that *my ignorance* of the import of common language has led me into an error, and that I shall be obliged to explain to my neighbor, lest through that ignorance the reputation of the Cultivator should suffer. I shall tell him that the "shedding of horns" means, that they become a little "loosened" at the end of three years, and that by "being replaced by other horns, which, like the second teeth, always remain," means, that the old horns only become tight again! By the way, how very interesting and wonderful is this obliging habit on the part of the horns, to become "loosened annually, so as to allow a lengthening of the bone of the horn," as without this obliging habit, "growth would be difficult, if not impossible." Query. Is it not owing to an absence of this obliging habit on the part of the horn toward the bone, that the Durhams have such short horns?

I will only add, that as the editors of the Cultivator speak of the "shedding of teeth" in the same

paragraph in which the "shedding of horns" is mentioned, that they must of course use the term in both places with the same meaning, and that, therefore, the old teeth do not fall out, but that the enamel of the tooth becomes loosened only, so as to "allow the growth of the bone."

Oct. 9th, 1843.

THRIFT AND CHARACTER OF THE TUSCAN PEASANTRY.

M. De Sismondi, author of the Fall of the Roman Empire, who had an estate in Tuscany, and was thoroughly acquainted with the character and condition of the country and its inhabitants, gives us the following delightful picture of the thrift and character of the Tuscan Peasantry. It certainly represents a very happy state of society; one which, compared with the restless, changing, ambitious character of our own population, leaves us little we think to boast of. The true philosophy of a happy life, has ever seemed to us to consist more in circumscribing than in increasing our wants and desires.

The land is cultivated for the proprietor on shares, he furnishing the land, house, and implements, and receiving half the product. The metayer, (peasant,) receives from the hand of Nature his whole subsistence. He has little want of money, for he has scarcely any payment to make. He hardly knows the existence of taxes, for they are paid by the proprietor; and as he has nothing to quarrel about with the government, he is in general attached to it. Neither has he any interest to settle with the church, tithes having long ago been abolished. He is a partner with his proprietor in interest, and has nothing to discuss with him, usage having fixed his rights and obligations. His contract may, it is true, be broken any year by his misconduct; but experience teaches the proprietor that he loses and never gains by discarding a peasant. Thus he lives on the land as if it were his inheritance, loving it devotedly, and laboring to improve it, and believing that it will be cultivated by his children and grandchildren. They understand it with a precision that the feeling of property alone can give. The terraces elevated one above another, are often not more than 4 feet wide, and the character of each is known to the metayer; this is dry, that is too cold and damp; here the soil is deep, there it is merely the incrustation of a rock; wheat thrives best here, barley there; here it would be lost labor to plant Indian corn, even beans or pease; a little farther flax flourishes wonderfully, and the border of this brook is wonderful for hemp. Thus in a space of 10 acres, the soil, the aspect, and the lay of the land, present a greater variety than a rich farmer finds on 500 or 600 acres.

The gentleness and benevolence of the Tuscan character are often spoken of; the reason is, that all cause of quarrel is removed from the cultivators, who constitute three fourths of the population.

When you leave the great roads, and climb up the hills of the valley of Nievole, you meet at every step little paths, which, winding among the vines and olives, are never traced by a wheel, and are only passable for mountain-horses with their loads. Among these paths, you meet at every hundred steps, upon some flowery hill-side, a little house, which presents the sweet image of industry fully rewarded, of man's love of the land, of abundance and peace. The house is substantially built with good walls, and has always one, and often two stories above the ground floor. The most spacious and airy of the rooms are devoted in May or June to the growth of the silk-worm.

All the linen and working-dresses of the family are home-made. One can hardly imagine the quantity of linen and linsey-woolsey the women accumulate by assiduous labor.

The following is an inventory *of the bridal clothes of one of a family living on the half product of ten acres of land*, their circumstances being about an average of this class:—28 chemises, 3 gowns of colored silk, 4 gowns of coarse ditto, 7 gowns of cotton cloth, 2 winter working gowns, 2 summer ditto, and skirts, 3 white skirts, 5 calico aprons, 1 black silk apron, 1 merino ditto, 9 colored working ditto, 4 white handkerchiefs, 8 colored ditto, 3 worked veils, 3 towels, 14 pairs of stockings, 2 hats, 2 gold cameos, 2 gold ear-rings, &c., &c. Truly, a fitting example for our enlightened and more highly-favored countrywomen. R. L. A.

Translated for the Gardeners' Chronicle, from the German of Dr. Hugo Mohl.

REVIEW OF LEIBIG'S VEGETABLE PHYSIOLOGY.

(Concluded from Page 270.)

In a subsequent part of this chapter Dr. Liebig expresses his surprise, that in all the works of Agronomists and Physiologists, one looks in vain for the leading principles of cultivation; nevertheless, at the end of this part of his work, he states that cultivation supplies every plant with that sort of food which it requires for the development of such organs or substances as are most available to man. He further dwells on the means of arriving at that end, viz., the chemical analysis of the inorganic ingredients of soil. But these latter facts, says Dr. Mohl, were known long before Liebig, Charles Sprengel having written a series of memoirs, to demonstrate the importance of the inorganic ingredients of the soil, both for the general growth of crops, and for that of certain organs in particular. Under this head, Liebig certainly ought to have mentioned the name of Sprengel, and although he has not done so, (concludes Dr. M.,) the history of science will amply repay the omission.

In the last chapter, which is headed "Rotation and Manures," Liebig opens the difficult question, why several crops of the same plant will not succeed on the same soil in an uninterrupted succession? and why, therefore, farmers resort to rotation? He thinks De Candolle's theory the best explanation of this, forgetting, it seems, that that coarse excrementitious theory has no better foundation than bad and injudicious experiments of Macaire Prinsep, the same man who misled De Candolle on other occasions also. Liebig, however, (says Dr. Mohl,) who has no idea that these experiments are fallacious and controverted by all succeeding ones of the same kind, works out this theory in its most minute details, and proves, *à priori*, that

plants *must* have excrements. He divides the latter into two classes: those, namely, which have been absorbed by the roots, but not being adapted for the nourishment of plants, are again returned to the soil; and secondly, such substances as having been transformed in the vegetable organism by the process of nutrition, are the result of the formation of starch, woody fibre, gluten, &c. Excrementitious matter of the first class may serve as food for other plants; nay, they may even be essential for that purpose. Those of the second, however, can not be used by other plants in the formation of woody fibre, &c., until changed into humus, and decomposed into ammonia, carbonic acid, &c.

This theory, says Dr. Mohl, is not only destitute of all reasonable foundation, but is directly contradicted by the experience of rotation. There is no known evidence in proof of the existence of such excrementitious matter. It is true, Liebig says, that such *must* be the case, but then he adduces no proof except an ambiguous analogy with the animal kingdom, and forgetting, as he so often does, what he said—"that analogy is the parent of that unfortunate comparison between vegetable and animal functions, which places both on the bed of Procrustes, and is the cause of all error." "There is not," concludes Dr. Mohl, "the least necessity for assuming a secretion from roots. If substances formed by vital processes are of no further use to a plant, they are excreted in the form of gas through the leaves, or deposited in the form of secretion in the glands and other organs, or thrown off with decaying leaves." This theory is moreover at variance with the experience of what takes place in the shifting of crops. According to Liebig's views, the excrementitious matter of the second class above mentioned, would not only injure the plants whence it is derived, but could not be assimilated by any others before it is transformed into humus. But experience points quite another way, because the stubble of clover, lucerne, or saintfoin, which is unfit for the growth of those species, will at once produce excellent crops of other plants. If Liebig should attempt to meet this objection by saying that such excrementitious matter can not be assimilated by the plants whence they are derived, but may be used by others, he will upset his whole doctrine of vegetable nutrition, according to which not only all the organic compounds which remain behind after the formation of starch, sugar, &c., but even starch and sugar themselves, (and thus all the organic substances, of plants,) are absolutely deleterious to other plants. It is impossible, therefore, not to arrive at conclusions entirely opposite to those of Liebig, especially if we consider the phenomena of rotation at greater length. The barrenness of soil for the growth of one kind of plant, while it is still fertile for others, can only depend (says Dr. Mohl) on two causes. The first generation of plants may exhaust the soil of such substances as are indispensable to growth, so that the second generation will be starved—and this certainly takes place; but it can not be the main cause of the failure of crops, else manure would again render the soil suitable for the same crop, which is only the case to a slight extent. We must, therefore, assume that the first crops do communicate to the soil substances detrimental to the subsequent crops. These substances must be of an organic nature. It has been shown that these can not be excrementitious, and therefore it follows, that such deleterious substances must consist of organic compounds, derived from the roots which have accumulated and remained behind in the land. If, then, in a soil filled with the remains of roots, the same crop will only succeed after a lapse of years, while other crops will thrive luxuriantly, we may conclude, that the organic compounds of such roots will be absorbed by plants *previous* to their being decomposed into inorganic substances; and that, consequently, plants of a different kind will use them for food, although those of the same kind will be injured by them.

After having assigned the utility of rotation to the formation of humus, Dr. Liebig states his views of vegetable nutrition at the different periods of growth. He says, that a plant returns just so much carbon to the soil, as it has absorbed from it in the form of carbonic acid, produced by decomposing humus. This supply of carbon is sufficient for many plants at the first period of their growth, but it is not sufficient to supply some of their organs with the necessary maximum of food. But the object of agriculture is to gain the maximum of produce, and this, says Liebig, "stands in a direct ratio to the amount of food which has been given to a plant during the first period of its development," therefore all pains are to be taken to increase the amount of humus.

The short and the long of these rather vague assertions (says Dr. Mohl) is, apparently, that a crop will be the greater the more food a plant has received from the soil before its period of flowering. But this axiom, although true in the main, is somewhat contradicted by another, where it is stated that humus is useful to young plants by contributing to the increase of their organs of atmospheric nutrition; but it is not indispensable, and its excess may even be detrimental in the first stages of development. The food, namely, which a young plant receives from the air in the form of carbonic acid and ammonia, is restricted within certain limits—it can assimilate no more than the air contains. If, therefore, in the beginning of growth, the number of twigs, sprouts, or leaves, overpass this proportion in consequence of a superabundance of food obtained from the soil at that period, when the plant requires more food from the air for the completion of its development, and for its flowering and fruiting than the air can supply it with, blooming and fruiting will not take place. In many cases, such food will merely suffice for the development of leaves, stems, or branches.

Here Dr. Mohl complains of the strange ambiguity of this part of Liebig's theory. In one instance (says Mohl) the usual quantity of humus in the soil suffices merely to form leaves, and if we want an abundant harvest, we must get it by conveying a maximum of food from the soil. On the other hand, humus adds *nothing* to the crops, but, on the contrary, is noxious, by conveying too much food, for it causes the production of too much foliage, a sufficient supply of food for which can

not be obtained from the air. Whence, then, does it arrive that a plant which has many leaves can *not* obtain from the air the food required for blooming, although it can do so if it has only a few leaves? It has been hitherto supposed that the reception of food from the air was in proportion to the number and size of its leaves; and this is plausible, but the contrary is not. When a plant standing in a moist and shaded situation grows too luxuriantly, and will not flower, the reason is not to be sought in a *deficiency* of food, but rather in its superabundance, and its influence on the too luxuriant development of its vegetative organs; for that will counteract the contraction of the axis and the metamorphosis of vegetative into floral organs.

Another statement, however, shows how Liebig arrived at the above conclusion. He says that, after the completion of its leaves, a plant does not require more carbonic acid from the soil; and that even perfect dryness of the soil will not impede the completion of its growth, if the plant continues to receive from dew and air the amount of moisture required for the process of assimilation; and that, in fine, it will derive in a hot summer its whole carbon exclusively from the atmosphere.

This assumption (says Dr. Mohl) is the result of an erroneous view of the fact, that in many plants—by no means in all—such organic substances are employed for the development of fruit, as, having been prepared by the leaves before the period of flowering, have been deposited in the stem or other organs, and are subsequently conveyed to the fruit. We know that some bulbous plants will fruit even when taken out of the soil. But general assertions, taken from special facts, can only lead to absurd conclusions. Let Professor Liebig cut plants in bloom above their roots, (*unnecessary*, he says, at that period,) and expose them to as much dew and rain as he likes, and see what will happen; or, as he is fond of experiments on a large scale, let him take the hay harvest for a test of this theory, which, after all, (concludes Dr. Mohl,) seems to be nothing more than a distorted and overdone *copy* of the doctrine of the development of plants given by Schwerz, in his treatise on Practical Agriculture, (Anleiitung zum Pract. Ackenbau, iii. 56.)

Besides the formation of humus, Liebig adduces another reason for the rotation of crops, viz., the relation which plants bear to the inorganic constituents of the soil. As every plant deprives the soil of certain ingredients, it thus makes it unfit for feeding similar plants, until by subsequent decomposition a fresh amount of such ingredients is again set free. To this proposition (says Dr. Mohl) no one will object; but it has long been known.

Having thus examined in detail the work of Dr. Liebig, Dr. Mohl concludes with the following general recapitulation. It appears upon the whole that Liebig has not availed himself of his chemical resources to clear up doubtful points in the nutrition of plants. Contrary to the spirit of a true investigator of Nature, he has not formed his conclusions on the detailed facts of vegetable phenomena, but on random observations, or vague operations on a large scale, destitute of all precision. His calculations are based on arbitrary assumptions. His book, therefore, far from being a consistent and well-digested theory, swarms with contradictions and false reasoning. He does not possess a knowledge of the most elementary doctrines of vegetable physiology. His assertion that physiologists have hitherto considered humus as the chief food of plants, is untrue. The assumption that plants live merely on inorganic substances, is by no means new, but has long been one of the controverted points of vegetable physiology. The assertion that all botanists have doubted the absorption of carbon by plants, by their decomposition of carbonic acid, is untrue. The assertion that plants neither absorb organic substances, nor assimilate them, rests on mere theoretical speculation, and is destitute of all proof. The statements as to the relation borne to the atmosphere by plants in the dark, is in direct opposition to every fact bearing on the subject. The assertion that the nitrogenous food of plants, and that which contains no nitrogen, are absorbed in certain proportions, is uncorroborated by the analysis of either the seed or the full-grown plant. The theory of the rotation of crops, is contrary to experience, and unsound in its details. The assertion that plants receive their food during summer from the atmosphere alone, is incorrect.

On the other hand, it can not be denied that Liebig's idea that plants derive their nitrogen from the ammonia of the atmosphere, is very happy and pregnant with results. It is also probable that the absorption of saline bases is in direct ratio to the power of saturation of the acids formed in plants. These two views are a real gain to science, and it may be expected that his work will also have the merit of exciting others to make correct experiments on the nutrition of plants. But he has endeavored to introduce into vegetable physiology a series of most erroneous notions, and his unbecoming outbreaks against other physiologists, have proved him to be very little acquainted with the subjects on which his book is written.

From the Southern Agriculturist.

ON THE CULTIVATION OF THE CUBA TOBACCO.

SIR:—The following communication on the Cuba tobacco, is from a gentleman who has had opportunities of becoming thoroughly acquainted with the mode of cultivating and curing the plant, as practised in Cuba, and where experience has enabled him to ascertain the modifications necessary to be adopted in transferring the culture to this country. It will be perceived that Gen. Hernandez estimates the value of the tobacco, *in leaf*, at 50 cents per pound—a higher price than it usually brings in our markets, where it is purchased for the purpose of being used as *wrappers* for cigars, the *fillings* of which are generally of American or Virginia tobacco. It is well known, however, that the best tobacco raised in the island is never exported, being reserved for the manufacture of the celebrated Havana cigars, after selling, as we have been informed, for more than a dollar a pound. As the tobacco raised and cured here, is considered by judges as no way inferior to the best Havana, it would probably sell for even a higher price than

that estimated below, were it properly prepared for market, according to the Cuba method.

There can be no doubt that this valuable plant may be easily added to the enriching staples, and other numerous resources that form the *golden fleece* of the south. It is an advantage of this culture, that it affords an instance in which the manufacturing and agricultural interests are happily combined, as its highest profits can only be obtained by putting the tobacco into a wrought form, and making it into cigars.

The subjoined directions will be found more specific and minute, than any that have before been given to the public, and will therefore, I hope, prove an acceptable contribution to the pages of the Agriculturist.

With respect, your obedient servant,

W. H. Simmons.

Mala-Compra, 15th April, 1830.

Dear Sir :—I have delayed this communication on the culture of Cuba tobacco longer than I ought, but as you are acquainted with the multiplicity of engagements that have constantly occupied my attention, I trust that you will excuse me.

The first thing to be considered in this, as in every other culture, is the soil, which for this kind of tobacco ought to be of a rich sandy loam, neither too high nor too low; that is, ground capable of retaining moisture. The more level, the better, and if possible, well protected by margins. The next should be the selection of a spot of ground to make the necessary beds.

It would be preferable to make these on land newly cleared, or at all events, when the land has not been seeded with grass; for grass seeds springing up together with the tobacco, would injure it materially, as the grass can not be removed without disturbing the tobacco plants. In preparing the ground for the nurseries, break it up properly, grub up all the small stumps, dig out the roots, and carefully remove them with the hand; this being done, make the beds from three to four inches high, of a reasonable length, and from three to three and a half feet broad, so as to enable the hand, at arm's length, to weed out the tender young plants with the fingers from both sides of the bed, and keep them perfectly clean.

The months of December and January are the most proper for sowing the seed in Florida. Some persons speak of planting it as early as the month of November; I am, however, of opinion, that about the latter part of December is the best time to sow tobacco seed; any sooner would expose the plants to suffer from the inclemency of the most severe part of our winter season. Before the seed is sown, take some dry trash and burn it off upon the nursery beds, to destroy insects and grass seeds; then take one ounce of tobacco seed and mix it with about a quart of dry ashes, so as to separate the seed as much as possible, and sow it broadcast. After the seed has been thus sown, the surface of the bed ought to be raked over slightly, and trodden upon by the foot, carrying the whole weight of the body with it, that the ground may at once adhere closely to the seed, and then water it. Should the nursery-beds apparently become dry from blighting winds or other causes, watering will be absolutely necessary; for the ground ought to be kept in a moist state from the time the seed is planted, until the young plants are large enough to be set out.

The nurseries being made, proceed to prepare the land where the tobacco is to be set out. If the land is newly cleared (and new land is probably more favorable to the production of this plant than it is to that of any other, both as respects quality and quantity), remove as many of the stumps and roots as possible, and dig up the ground in such a manner, as to render the surface perfectly loose; then level the ground, and in this state leave it until the nursery-plants have acquired about one half the growth necessary to admit of their being set out. Then break up the ground a second time in the same manner as at first, as in this way all the small fibres of roots and their rooted parts will be more or less separated, and thus obviate much of that degree of sponginess so common to new land, and which is in a great measure the cause of new land seldom producing well the first year, as the soil does not lay close enough to the roots of the plants growing in it; so that a shower of rain produces no other effect than that of removing the earth still more from them. Should the land be such as to admit of being worked with the plow, it ought certainly to be preferred to the common hoe. The plow, however, should be excluded after the plants are set out.

The ground having been prepared and properly levelled off, and the plants sufficiently grown to be taken up, say of the size of good cabbage plants, take advantage of the first wet or cloudy weather to commence setting them out. This should be done with great care, and the plants put single at equal distances; that is, about three feet north and south, and two and a half or two and three fourths feet east and west. They are placed thus close to each other, to prevent the leaves growing too large. The direction of the rows, however, should alter according to the situation of the land; where it has any inclination, the widest space should run across it, as the beds will have to be made, so as to prevent the soil from being washed from the roots by rain, when bedded; but, where the land is rather level, the three-feet rows should be north and south, so as to give to the plants a more full effect on them by passing across the beds, than by crossing them in an oblique direction. To set the plants out regularly, take a task line of 105 feet in length, with a pointed stick three feet long attached to each end of it; then insert a small piece of rag or something else through the line, at the distance of two feet and three fourths from each other; place it north and south, (or as the land may require,) at full length, and then set a plant at every division, carefully keeping the bud of the plant above the surface of the ground. Then remove the line three feet from the first row, and so on until the planting is completed. Care ought to be taken to prevent the stretching of the line from misplacing the plants. In this way the plants can be easily set out, and a proper direction given to them both ways. In taking the

plants up from the nursery, the ground should be first loosened with a flat piece of wood, or iron, about an inch broad; then carefully holding the leaves closed toward each other, between the fingers, draw them up, and place them in a basket or some other convenient thing, to receive them for planting. After taking up those which can be planted during the day, water the nursery that the earth may again adhere to the remaining ones. The evening is the best time for setting out the plants, but where a large field has to be cultivated, it will be well to plant both morning and evening. The plants set out in the morning, unless in rainy or cloudy weather, should be covered immediately, and the same should be done with those planted the evening previous, should the day open with a clear sunshine—the palmetto leaf answers this purpose very well. There should be water convenient to the plants, so as to have them watered morning and evening, but more particularly in the evening, until they have taken root.* They should also be closely examined when watered, so as to replace such plants as happen to die, that the ground may be properly occupied, and that all the plants may ripen as nearly together as possible.

From the time the plants are set out, the earth round them should be occasionally stirred, both with the hand and hoe. At first hoe flat, but as soon as the leaves assume a growing disposition, begin gradually to draw a slight bed toward the plant. The plants must be closely examined, even while in the nursery, to destroy the numerous worms that feed upon them—some, by cutting the stalk and gnawing the leaves when first set out; these resemble the grub-worm, and are to be found near the injured plant under ground; others which come from the eggs deposited on the plant by the butterfly, and feed on the leaf, grow to a very large size, and look very ugly, and are commonly called the tobacco-worm. There is also a small worm which attacks the bud of the plant, and which is sure destruction to its further growth; and some again, though less destructive, are to be seen within the two coats of the leaf, feeding as it were on its juices alone. The worming should be strictly attended to every morning and evening, until the plants are pretty well grown, when every other day will be sufficient. The most proper persons for worming, are either boys or girls of from ten to fourteen years of age. They should be made to come to the tobacco-ground early in the morning, and be led by inducements, (such as giving a trifling reward to those who will bring the most worms,) to worm it properly. Grown persons would find it rather too tedious to stoop to examine the under part of every leaf, and seek the worm under ground; nor would they be so much alive to the value of a spoonful of sugar, or other light reward. Besides, where the former would make this search a matter of profit and pleasure, it would to the latter prove only a tedious and irksome occupation. Here I will observe, that it is for similar reasons that the culture of the Cuba tobacco-plant more properly belongs to a white population, for there are few plants requiring more attention and tender treatment than it does. Indeed it will present a sorry appearance, unless the eye of its legitimate proprietor is constantly watching over it.

When the plants have acquired from twelve to fourteen good leaves, and are about knee high, it may be well to begin to top them, by nipping off the bud with the aid of the finger and thumb nail,* taking care not to destroy the small leaves immediately near the bud; for if the land is good and the season favorable, those very small top leaves will in a short time be nearly as large, and ripen quite as soon as the lower ones, whereby two or four more leaves may be saved; thus obtaining from sixteen to eighteen leaves in the place of twelve or fourteen, which is the general average. As the topping of the tobacco-plant is all essential in order to promote the growth, and to equalize the ripening of the leaves, I would observe that this operation should at all events commence the instant that the bud of the plant shows a disposition to go to seed, and be immediately followed by removing the suckers, which it will now put out at every leaf. Indeed the suckers should be removed from the plant as often as they appear. The tobacco-plant ought never to be cut before it comes to full maturity, which is known by the leaves becoming mottled, coarse, and of a thick texture, and gummy to the touch, at which time the end of the leaf, by being doubled, will break short, which it will not do to the same extent when green. It ought not to be cut in wet weather, when the leaves lose their natural gummy substance, so necessary to be preserved.—About this period the cultivator is apt to be rendered anxious by the fear of allowing the plants to remain in the field longer than necessary, until experience removes these apprehensions; he should be on his guard, however, not to destroy the quality of his tobacco, by cutting it too soon. When the cutting is to commence, there should be procured a quantity of forked stakes, set upright, with a pole or rider setting on each fork, ready to support the tobacco, and to keep it from the ground. The plant is then cut obliquely even with the surface of the ground, and the person thus employed should strike the lower end of the stalk two or three times with the blunt side of his knife, so as to cause as much of the sand or soil to fall from it as possible; then tying two stalks together, they are gently placed across the riders or poles prepared to receive them. In this state they are allowed to remain in the sun or open air, until the leaves have somewhat wilted, whereby they will not be liable to the injury which they would otherwise receive if they came suddenly in contact with other bodies when fresh cut.—Then place as many plants on each pole or rider as may be conveniently carried, and take them in the drying-house, where the tobacco is strung off upon the frames prepared for it, leaving a small space between the two plants, that air may circulate freely among them, and promote their drying. As the drying advances, the stalks are brought closer to each other, so as to make room for thos which yet remain to be housed.

* It is hence generally necessary that wells should be sunk at convenient distances through the field.

* Washing the hands after this in water is necessary, as the acrid juices of the plants, otherwise, soon produce a soreness of the fingers.

In drying the tobacco, all damp air should be excluded, nor ought the drying of it to be precipitated by the admission of high drying winds. This process is to be promoted in the most moderate manner, except in the rainy season, when the sooner the drying is effected the better; for it is a plant easily affected by the changes of the weather, after the drying commences. It is then liable to mildew in damp weather, which is, when the leaf changes from its original color to a pale-yellow cast, and from this, by parts, to an even brown. When the middle stem is perfectly dry, it can be taken down, and the leaves stripped from the stalk and put in bulk to sweat, that is, to make tobacco of them; for before this process, when a concentration of its better qualities takes place, the leaves are always liable to be affected by the weather, and can not well be considered as being anything else than common dry leaves, partaking of the nature of tobacco, but not actually tobacco. The leaves are to be stripped from the stalks in damp or cloudy weather, when they are more easily handled, and the separation of the different qualities rendered also more easy. The good leaves are at this time kept by themselves for *wrappers*, or *caps*, and the most defective ones for *fillings*, or *tripa*. When the tobacco is put in bulk, the stems of the leaves should all be kept in one direction, to facilitate the tying of them in hanks; afterward make the bulk two or three feet high, and of a proportionate circumference. To guard against the leaves becoming overheated, and to equalize the fermentation or sweating, after the first twenty-four hours, place the outside leaves in the centre, and those of the centre to the outside of the bulk. By doing this once or twice, and taking care to cover the bulk either with sheets or blankets, so as to exclude all air from it, and leaving it in this state for about forty days, it acquires an odor strong enough to produce sneezing, and the other qualities of cured tobacco. The process of curing may then be considered as completed. Then take some of the most injured leaves, but of the best quality, and in proportion to the quantity of tobacco made, and place them in clear water, there let them remain until they rot, which they will do in about eight days; then break open your bulks, spread the tobacco with the stems in one direction, and dampen them with this water in a gentle manner, that it may not soak through the leaf; for in this case, the leaf would rot.* Then tie them in hanks of from twenty-five to thirty leaves; this being done, spread the hanks in the tobacco-house for about twelve hours, to air them, that the dampness may be removed, and afterward pack them in casks or barrels, and head them tight, until you wish to manufacture them. The object of dampening the tobacco with this water, is to give it elasticity to promote its burning free, to increase its fragrance, to give it an aromatic smell, and to keep it always soft. This is the great secret of curing tobacco for cigars properly, and for which we are indebted to the people of Cuba, who certainly understand the mode of curing this kind of tobacco better than any other people. It is to them a source of great wealth, and may be made equally so to us. We can have here three cuttings from the original plant; the last cutting will be of rather a weak quality, but which, nevertheless, will be agreeable to those who confine their smoking to weak tobacco.

* Sponge is used in Cuba for this delicate operation.

In ratooning the plant, only one sprout ought to be allowed to grow, and this from those most deeply rooted—all other sprouts ought to be destroyed.

The houses necessary for the curing of tobacco ought to be roomy, with a passage-way running through the centre, from one extremity of the building to the other, and pierced on both sides with sufficient number of doors and windows, to make them perfectly airy.

In addition to what I have said respecting the mode of cultivating and treating the tobacco-plant, I have further to state, that once the plant is allowed to be checked in its growth, it never again recovers it. That in promoting the drying of the leaf, fire should not be resorted to, because the smoke would impart to it a flavor that would injure that of the tobacco itself.

In order to obtain vigorous plants, the seed ought to be procured from the original stalk, and not from the ratoons, by allowing some of them to go to seed for that express purpose. In Cuba, the seed is most generally saved from the ratoon plants, but we should consider that that climate and soil are probably more favorable to the production of this plant than ours, and consequently, we ought to confide in the best seed, which is had from the original stalk.

All plants have their peculiar empire; nevertheless we should not be deterred from planting Cuba tobacco here; for even should we be compelled to import the seed every third year, which would be as often as necessary, it would still prove a profitable culture. Taking 600 lbs., which is the average product per acre, it would yield, if well cured, at 50 cents per lb., $300 in the leaf.

The following exhibits the profit to be derived from it when manufactured into cigars:—

600 lbs., allowing 8 lbs. to the 1000, would produce 75,000 cigars, which, at $10 per thousand . . .		$750 00
Cost of the leaf	$300 00	
Worth of manufacture at $2 50 per thousand . . .	187 50	—487 50
Difference in favor of the manufacturer		$262 50

This amount being the profits of the manufacturer, alone, the profit to him who would combine both pursuits would be more than doubled.

As to the quantity of land which can be cultivated to the hand, there is some difference in the practice of planters; however, I think that I am within the usual calculation in saying, that an acre and a half would not exceed the quantity that an able hand can easily cultivate and manage properly.

I am, with respect, your obedient servant,

JOSEPH M. HERNANDEZ.

N. B.—I have omitted to state the cost of the cigar-boxes, which of course has also to be deducted. This would vary according to the facility of obtaining materials, but probably would not exceed 25 cents per box.

To Dr. WM. H. SIMMONS.

FOREIGN AGRICULTURAL NEWS.

By the steampacket Britannia, we have our files of European journals up to the 19th October.

Markets. *Ashes* were firm and in good demand. *Cotton* had advanced ¼d. per lb., and a very large business had been done in it previous to the 16th, nearly 100,000 bales having changed hands in a single week; but on the arrival of the Caledonia at Liverpool on the 17th, bringing more flattering advices of the state of the present crop, the market became flat, and the article receded ⅛d., so that the real rise since our last, as the market now stands, is only ⅛d. per lb. Stock on hand at Liverpool, 732,000 bales; at Havre, 96,000 bales. *Beef* was taken to a fair extent; the stock on hand small. *Pork* was held firm, with rather short supplies. *Lard* had slightly receded. *Cheese* plenty and rather dull. It was thought the better qualities would be sought for on the approach of winter. *Naval Stores* and *Tobacco* in moderate demand. *Butter* has advanced a trifle. *Flour* had declined. *Rice* in fair request.

Business generally continued very good, and the manufactories were in full operation. News had arrived from China of the full ratification of the British treaty; and it was anticipated that there would be an increased consumption of English goods in the Celestial Empire.

Money still continued abundant, and to be had at low rates. The bullion was increasing in the bank of England.

American Stocks were improving, and the holders seem unwilling to sell at present prices.

Canada Flour.—The new Canada Corn-Bill is passed, and flour from the British Provinces is admitted at 7½d. per barrel, and wheat at 1s. per quarter; equal to about 15 cents per barrel, and 3 cents per bushel of our money. We are of opinion that this new bill will have a slightly-favorable effect upon our own market.

The Harvest in England had proved a good one, and things generally in Europe seemed to wear a favorable aspect. We trust they may long continue so.

Great Sale of Stock.—At the late Exmoor sale of stock, £6,000 ($30,000) worth was knocked off by Mr. Moggridge the auctioneer. The quantity of eatables and drinkables provided for the dinner, seemed to be in proportion to the sales; two fat bullocks, and 4 hogsheads of beer, being among the items on this occasion.

Liverpool Mail.—*Good Effects of Draining.*—At the late annual meeting of the Liverpool Agricultural Society, the President, Lord Stanley, said that he would state one instance of the practical returns which might be expected from thorough, scientific draining. In 1841 his father was about to enclose in the park at Knowsly a tract of about 80 acres. Of this 80 acres, about 20 were strong clay land, with a very retentive sub-soil, and the remaining 60 he remembered from his boyhood as the favorite haunt of snipes and wild ducks, and never saw there anything else. In the course of the first year the 60 acres maintained, and maintained very poorly during the summer, six horses; and on the 20 acres there was a very small crop of very poor hay. It was impossible for land to be in a poorer condition; and they would agree with him when he told them, that in breaking it up, they had some two or three times to dig the plow-horses out of the bog. In 1841 the whole of this land was thoroughly sub-soiled and drained, and in 1842, what was not worth 10s an acre the year before, was in turneps, and on that land they fed off in five months, and fattened for the butcher, 80 beasts and 300 sheep, and afterward carted into the farm-yard 350 tons of turneps. In the present year they had a very fair crop of barley and oats, which his friend Mr. Henry would be very glad to show to any gentleman who felt any curiosity on the subject. Now he did not hesitate to say that that land was, at that moment, worth 30s. an acre. The outlay upon it for pulling up old fences, thorough draining, tiling, and breaking it up, amounted just to 7*l.* 10s. per acre, just giving 20s. for every 150s. of outlay, and giving to the landlord a permanent interest of 14 per cent. on the money laid out on that unpromising ground. It happened that in the same year they took into their own hands land which had been abandoned by the tenant as perfectly worthless. It was a large field of twenty-two acres of very poor sandy soil. It was drained at an expense of 2*l.* per statute acre, and in the first year they fed off on that land 120 sheep, the remaining part of the turneps being carted to the farm-yard; and he ventured to say, that at the expense of 2*l.* per acre, the land was increased in value 10s. per acre to the landlord, and 10s. to the tenant.

Fences.—Lord Stanley said he had a word or two to offer with regard to fences and the laying out of farms in this country. He was no advocate for the destruction of hedges, or the destruction of hedge-row timber. He was well aware that in a country so flat and exposed as this, it was not ornament only, but it was protection that was afforded by hedge-row timber. He was aware that the size of fields must bear some proportion to the size of the farm, and that the size of the farm must be proportioned to the capital of the farmer who occupied it; and with a conviction of the superior cultivation and economy of large farms, he would make considerable sacrifice rather than remove from any farm, too small though he might think it, an industrious tenant who was exerting himself to the best of his means and abilities to cultivate it to the best advantage. But though he was not an advocate for the destruction of the hedge-row timber, some bounds must be set to the timber, and still more to the fences. He had observed in some parts of this country fields of two acres, one acre, and even three quarters of an acre, and the number of fences this required could lead to no profit, but did much mischief. The other day he called for a particular return of the quantity of land gained in a district of 291 acres, by the mere removal of the fences, and laying the fields properly together, and what did they suppose it amounted to? Why to 22 statute acres, or nearly one seventh of the whole surface of the soil.

Sub-soil Plowing.—The Committee on Farms and Crops make the following observations on the beneficial effects of sub-soiling:—Sub-soiling of land, after under-draining, we consider has been of great service in those instances in which we have seen it adopted. If there be any sub-soil on which it is the least likely to be beneficial, we think it is the very stiff clays. The sub-soil plow is generally worked by four or five horses, preceded by a common plow with two horses, and loosens the soil about sixteen inches deep. One of the claimants has had a sub-soil plow constructed, which he can work with two horses, and which must be considered a great desideratum in sub-soil plowing. We have just seen a new description of sub-soil plow, at Mr. Neilson's, of Halewood, and which is applicable for working between the turnep drills. It will loosen the soil twelve inches deep, is drawn by three horses, and is likely to prove a useful implement.

Pharmaceutical Journal.—*Sagacity of Bees.*—A few pounds of honey had been taken from a hive (about six miles from London) and placed in a closet, under lock and key. The windows of the room having been

left open, the bees obtained admission, and entering the closet under the door, removed the whole of the honey. The cells of wax were left entire, and the honey was conveyed to the central division of the hive, where it was safely deposited in the course of the day. It is evident that spies must have been employed to observe where the honey was placed, and that as soon as the information was communicated to the hive, the swarm took this vigorous measure for the recovery of the stolen property. It is remarkable that they should have succeeded so completely and in so short a time, since the closet was entirely dark, and they could only enter by a crevice under the door.

GARDENERS' CHRONICLE.—*Flowering the Paulovnia Imperialis.*—The flowers of this tree are deliciously sweet, and are produced freely on very young plants, if forced for that purpose. The conditions to be attended to are—to keep the plants under-potted—to force them slowly in a cool stove, early vinery, or forcing-house, beginning early in the spring; by midsummer they will have finished their growth, have begun to show their flower-buds, and to cast their leaves; they will then require less water, and in six weeks or two months the flowers will begin to expand, and the plants, of course, will be brought into the conservatory, where they will take up little room, as they may be set anywhere, only leaving their heads of flowers free above other plants which surround them. Now, we can easily see that with a good stock of these plants, we may have some of them in flower for the conservatory all the winter and most of the spring months, by introducing a few plants into a forcing-house once a month, from January to May, and if at first the succession comes in faster than we wish, the plants may be set out-of-doors in a cool frame, to keep them back, as under this culture, the young wood will become perfectly ripened, and the tree rendered much more hardy. But, as Mr. Brewster, Mrs. Wray's successful gardener remarks, "If you allow these plants large pot-room, you are only laying the foundation for that great superstructure of wood and foliage which can only be ripened in a more favorable climate than ours; and unless you get the wood well ripened, you must be content with large leaves only." Last year I kept one of our plants of Paulovnia in the stove until it was quite ripe, then inured it by degrees to the open air, and by the beginning of July had it planted out in an exposed situation in the pleasure-ground, giving it no protection in winter; early in May it was in leaf, and about four feet high; after a few weeks a strong sucker came up from the collar; I cut down the old plant to this sucker early in June last, and now the sucker has formed a little tree about 10 feet high, with immensely large rhubarb-like leaves. Might not the Catalpa syringæfolia be treated like paulovnia for the sake of its large, trumpet-like flowers, which are produced in abundance in the neighborhood of London and farther south, but are seldom to be met with in colder parts of the country?

Blisters in the Leaves of Peach-Trees.—A wash of sulphur, soot, and lime, applied to peach-trees in spring, does not prevent the leaves from blistering. This disease is occasioned by cold. Ammoniacal liquor, diluted with 10 or 12 parts of water, will kill the aphis which infests peach, nectarine, and other fruit-trees. The ants do not feed on these insects until the latter are either dead or sickly, and then they carry them off the tree. It is understood that it is the sweet exudation from the aphides which tempts the ants.

Budding Rhododendrons.—Mr. Beaton, in his "Calendar of Operations" for Sept. 30, mentions the success of an experiment in budding rhododendrons in the open air, and also that a young English lady has outstripped the very best of gardeners in this operation; but I beg to inform him that it has been practised here with great success for many years, and we have now standards with large fine heads from buds; also a quantity of buds which have been inserted this season, that have taken well. It will, without doubt, be a great acquisition to gardening, as flower-buds are generally formed on the first season's growth.—*H. G. Y., Dorking.*

New and superior System of Potting Plants.—Take a 16 or 12-sized pot, place three inches of bottom drainage, and fill up with pieces of peat from one to four inches square; fill the interstices with the fibrous siftings of peat, and pieces of crocks, till the pot is quite full; then plant a seedling or struck cutting of heath of similar habit, give very little water till the little plant shoots freely; and in this treatment is contained the only secret in growing fine specimens.

Editor's Table.

FAMILIAR LETTERS ON CHEMISTRY, and its Relation to Commerce, Physiology, and Agriculture; by Justus Leibig, edited by John Gardner, M. D., 180 pp. 18 mo.; price, bound, 25 cts., stitched in paper covers, 12½ cts.: D. Appleton & Co., 200 Broadway. The same, 53 pp. octavo, J. Winchester, New World press, 30 Ann st.; price 6¼ cents. The same, octavo, in a uniform edition with the other works of Leibig, James M. Campbell, Philadelphia; Saxton & Miles, 205 Broadway, N. Y.; price 12½ cts. The announcement of three editions of Leibig's Letters, as above, is enough to show the immense popularity of his works. What we have found time to read of his Letters, we like much; they abound with valuable information, and should be faithfully perused by all who are desirous of information upon the subjects of which they treat.

HOVEY & CO.'S DESCRIPTIVE CATALOGUE OF ROSES, cultivated and for sale at the Cambridge Nurseries, Cambridge, near Boston, Mass., for the autumn of 1843 and spring of 1844. The above list is very extensive, containing names, description, prices, &c., of the greatest favorite of flowers, &c., and can be had upon application to Messrs. Hovey & Co., of Merchants' Row, Boston.

APPLIED CHEMISTRY in Manufactures, Arts, and Domestic Economy, edited by E. A. Parnell, with engravings on wood, in monthly Nos., octavo; price 25 cts.

The ENCYCLOPEDIA OF CHEMISTRY, Theoretical and Practical; presenting a complete and extended view of the present state of chemical science; by James C. Booth, and Martin H. Boyle, with numerous engravings, in monthly Nos., octavo; price 25 cents. Both of the above works are published by Carey & Hart, of Philadelphia, and for sale by Saxton & Miles of this city. The editors are professors and lecturers on chemistry, and we have no doubt will give the public able and satisfactory works on this important science, and such as may safely be referred to as containing the latest and best information.

THE SILK QUESTION SETTLED, being a Report of the proceedings of the late Silk Convention held in this city, and the documents submitted to it, is in press, and will soon be out, published by Saxton & Miles, 205 Broadway, in a pamphlet of about 120 pages, as an American Agriculturist extra, and uniform with it. We shall speak of this able report more at length hereafter.

A SILK MANUAL is also about to be published under the auspices of the American Institute; it being a prize essay.

REVIEW OF THE MARKET.

PRICES CURRENT IN NEW YORK, NOVEMBER 13, 1843.

ASHES, Pots,	per 100 lbs.	$4 56	to	$4 62
Pearls,	do.	5 25	"	5 38
BACON SIDES, Smoked,	per lb.	4½	"	5½
In pickle	do.	5	"	5½
BALE ROPE	do.	6	"	9
BARK, Quercitron	per ton	23 00	"	24 50
BARLEY	per bush.	52	"	56
BEANS, White	do.	1 12½	"	1 25
BEEF, Mess	per bbl.	6 00	"	7 00
Prime	do.	4 00	"	5 00
Smoked	per lb.	7	"	7½
Rounds, in pickle	do.	4	"	5½
BEESWAX, Am. Yellow	do.	28	"	30
BOLT ROPE	do.	12	"	13
BRISTLES, American	do.	25	"	65
BUTTER, Table	do.	12	"	15
Shipping	do.	6	"	10
CANDLES, Mould, Tallow	do.	9	"	12
Sperm	do.	32	"	38
Stearic	do.	20	"	25
CHEESE	do.	4	"	7
CIDER BRANDY, Eastern	per gal.	35	"	40
Western	do.	28	"	35
CLOVER SEED	per lb.	8	"	9
COAL, Anthracite	2000 lbs.	4 50	"	5 50
Sidney and Pictou	per chal.	8 00	"	8 50
CORDAGE, American	per lb.	11	"	12
CORN, Northern	per bush.	56	"	58
Southern	do.	52	"	54
COTTON	per lb.	6	"	11
COTTON BAGGING, Amer. hemp	per yard.	16	"	18
American Flax	do.	15	"	16
FEATHERS	per lb.	27	"	31
FLAX, American	do.	8	"	8½
FLAX SEED, rough	per 7 bush.	8 75	"	9 00
clean	do.	— —	"	— —
FLOUR, Northern and Western	per bbl.	4 62	"	4 75
Fancy	do.	5 50	"	5 62½
Southern	per bbl.	4 50	"	4 75
Richmond City Mills	do.	5 50	"	5 62
Rye	do.	3 00	"	3 12
HAMS, Smoked	per lb.	5	"	7½
Pickled	do.	4	"	5
HAY	per 100 lbs.	40	"	44
HIDES, Dry Southern	per lb.	9	"	11
HEMP, Russia, clean	per ton.	185 00	"	190 00
American, water-rotted	do.	140 00	"	180 00
do dew-rotted	do.	90 00	"	140 00
HOPS	per lb.	6	"	8
HORNS	per 100	1 25	"	5 00
LARD	per lb.	5½	"	7
LEAD	do.	3½	"	4
Sheet and bar	do.	4	"	4½
MEAL, Corn	per bbl.	2 75	"	3 00
Corn	per hhd.	12 50	"	13 00
MOLASSES, New Orleans	per gal.	24	"	27
MUSTARD, American	per lb.	16	"	31
OATS, Northern	per bush.	30	"	32
Southern	do.	25	"	26
OIL, Linseed, American	per gal.	75	"	80
Castor	do.	90	"	1 00
Lard	do.	55	"	65
OIL CAKE	per 100 lbs.	1 00	"	— —
PEAS, Field.	per bush.	1 25	"	— —
PITCH	per bbl.	1 12½	"	1 37
PLASTER OF PARIS	per ton.	2 00	"	2 25
Ground, in bbls	per cwt.	50	"	— —
PORK, Mess	per bbl.	10 00	"	11 00
Prime	do.	9 25	"	10 12
RICE	per 100 lbs.	2 75	"	3 12
ROSIN	per bbl.	75	"	1 00
RYE	per bush.	69	"	70
SALT	per sack	1 35	"	1 50
SHOULDERS, Smoked	per lb.	3	"	4½
Pickled	do.	3	"	4
SPIRITS TURPENTINE, Southern	per gal.	38	"	40
SUGAR, New Orleans	per lb.	6	"	7½
SUMAC, American	per ton	25 00	"	27 50
TALLOW	per lb.	7	"	7½
TAR	per bbl.	1 25	"	1 50
TIMOTHY SEED	per 7 bush.	11 00	"	13 00
TOBACCO	per lb.	3	"	6½
TURPENTINE	per bbl.	2 50	"	2 62
WHEAT, Western	per bush.	95	"	1 00
Southern	do.	85	"	95
WHISKEY, American	per gal.	23	"	25
WOOL, Saxony	per lb.	35	"	50
Merino	do.	30	"	35
Half-blood	do.	25	"	27
Common	do.	18	"	22

New York Cattle Market—November 13.

At market, 1,050 beef Cattle, (250 southern), 25 Cows and Calves, and 6,000 Sheep and Lambs.

PRICES.—*Beef Cattle* do not show any great change except for the best, which are in demand. We quote ordinary to prime retailing $4 *a* $4 50 to 5 *a* $5 25. 200 unsold, and 40 taken to Bermuda.

Cows and Calves.—All taken at $18 *a* $28.

Sheep and Lambs.—Sales of the former at $1 87½ *a* $3 25, as in quality, and of Lambs at 87½ *a* $2 12½, which is a decline.—500 unsold.

REMARKS.—*Ashes*, a limited supply, and sales brisk with an upward tendency. *Cotton*, in this great staple, the American market is at present totally independent of that of Great Britain; we know the precise amount there on hand, and the probable quantity of consumption for the ensuing year, and with the information of the state of the crop at home, can calculate better even than those abroad, whether there will be a rise or fall. The latest accounts from the south are gloomy enough. Owing to the continued heavy rains, large quantities of a luxuriant growth have completely disappointed expectation, by rotting in the boll; and it is confidently calculated now, that the present crop can not reach over 1,800,000 bales. This diminution of production, in conjunction with the increased consumption, the abundance of money, and the general improvement in other things, has given us a very active market the past week, at an advance of ¼ to ⅜, and some assert of even ½ cent per lb. of a few prime lots, and the probability is, that it must go higher rather than lower, unless a favorable change has taken place in the weather at the south ere this. Exports since 1st September last, 28,925 bales; same time last year, 78,159; same time year before, 65,661 *Flour* and *Meal* are abundant, and large quantities have gone into store. About 1,300,000 brls. of Flour have been received this season down the Hudson. *Grain.* Wheat is in good demand, and rather wanted. Rye and Oats are selling fairly. Corn, somewhat scarce and improving. *Hay*, little afloat. *Molasses*, steady. *Naval Stores*, without change. *Provisions* tolerably active. *Lard*, especially, in good request. Dressed Hogs by the quantity are taken by the packers at $5 per hundred. At Cincinnati they command from $2.37 to $2.50. *Rice*, little doing. *Seeds*, considering the season, are in good demand. *Sugar*, in moderate request. The crop is represented as quite short in Louisiana. *Tobacco* continues quiet; if anything, prices are in favor of the seller. *Wool*, the foreign stock on hand here is light, and a good business is now doing in American qualities.

Stocks continue to advance. United States sixes, payable in 1862, are now 18 to 19 per cent. above par. Nine months ago they were below par.

Money as abundant as ever, although the banks are asking more for it.

The Weather is cold for the season, with a superabundance of rain. Farther north the snows have been frequent and heavy, and came on so early as to considerably injure the late root crops in harvesting, and in some instances destroy those still left in the ground.

TO CORRESPONDENTS.—C. Baker, R. B. C., and Wm. Partridge, will find place in our next. Mr. Grove's letter was deferred till the present No., we wishing to get official information as to the census of sheep.

CHARLES STARR, Jr.,

MENDHAM, MORRIS COUNTY, NEW JERSEY,

Is prepared to execute all orders for thorough-bred Berkshire Pigs, from the imported boar Hagbourn, and a superior Boar of Windsor-castle family, and fifteen choice sows, lately procured from A. B. Allen, of Buffalo, New York.

Pigs from this superior stock, from 2 to 3 months old, will be delivered, well caged, on shipboard, at New York, for $25 to $30 per pair. Feed furnished, when desired, at $3 per barrel.

Persons desiring either pigs or full-grown animals, can be supplied with all the advantages of Mr. Allen's stock at Buffalo, without incurring the risk and cost of canal transportation—the advertiser's residence being but half a day's journey from New York.

Woburn pigs of a superior quality also for sale, caged and delivered as above, for $20 per pair.

BLACK GALLOWAY CATTLE.

A pure-bred imported cow, and a bull of the Galloway or Kyloe breed of Scotch Highland cattle, are for sale in this vicinity. These animals are very fine of their kind, and were chosen from one of the most celebrated breeders of this stock in Scotland. The cow took several prizes at the agricultural shows before being shipped to this country, and gives a superior quality of milk. The bull is quite equal to the cow, and they will be sold at a reasonable price.

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The New Descriptive Catalogue, not only of Fruit, but also of Ornamental Trees, Shrubs, and Plants, cultivated and for sale at this ancient and celebrated Nursery (known as Prince's, and by the above title for nearly fifty years), with directions for their culture, may be had *gratis* on application to the new proprietors by mail, post paid. The collection at this establishment is unrivalled, and prices generally very much reduced; and the proprietors flatter themselves that the catalogue will be found to surpass in extent of information and usefulness, anything of the kind ever before presented to the public, and to be worthy of a permanent place in the library of the horticulturist. Orders will be promptly executed.

WINTER & Co., Proprietors.

Flushing, Oct. 24th, 1843.

A STOCK MAN WANTED TO GO SOUTH.

A planter, in the state of Georgia, wishes to engage a faithful competent man to take charge of his stock. If he be married, and his wife be a good dairywoman, she will also find employment. The situation is in the interior of the country, and *quite healthy*. None need apply if above middle age, or who have not had some experience in their business in this country, and can bring the best of references.

Address the Editor of this paper.

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The Subscriber will attend promptly to the execution of all orders for the purchase of stock, agricultural implements, or merchandise of any kind; also the negotiation of loans, sales of lands, payment of taxes, &c. He has been more or less engaged in mercantile pursuits in this city for ten years, and has an extensive acquaintance with moneyed men, and a thorough knowledge of business in general. Cash or produce must invariably be in hand, before orders for purchases can be executed.

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Among the many publications of more than doubtful utility, with which our presses groan, it is pleasant to offer to the public one which, while it can not injure the mental and moral powers, is capable of improving our health and prolonging our days. It is now about ten years since this work was first published, since which time it has passed through many large editions, and the astonishing number of *one hundred thousand* copies has been sold in the southern and western states, and the demand is increasing.

It has just been revised and corrected, containing 900 pages, and executed in superior style. People may be disposed to smile when we tell them that they can save money by purchasing this book, but we think we can satisfy them that such is the fact. In every family more or less is paid yearly for doctor's bills. A child is taken with a fever, or some other complaint, and from ignorance nothing is or can be done effectually to check it. The physician is called, and a large bill is contracted; whereas, had GUNN'S DOMESTIC MEDICINE been on hand, a remedy could easily have been found which would have checked the disease in its first stage, and not only have saved the purse, but perhaps the life.

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This work comprises 64 pages, double columns octavo, with numerous wood cuts, price $8 per hundred, 12½ cents each. In the contents will be found—Agricultural Statistics of the United States—Aspects and Nodes—Astronomical Calendars for Montreal, Boston, New York, Philadelphia, Charleston, and New Orleans—Characters and Names of the Planets, &c.—Farmers' Northern Calendars, with particular directions for the management of the Farm, Cattle, Fruit and Flower Garden, &c.—Southern Calendars for the Planter and Farmer, with explicit directions for the culture and harvesting of Cotton, Rice, Tobacco, &c., &c.

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None but choice specimens of any of the above stock will be supplied, and at prices corresponding with the times. Address, post paid, as above.

Oct. 12th, 1843. R. H. HENDRICKSON & Co.

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